FLOATING POINT TO PNEUMATIC OUTPUT SERIES

Installation & Operation Instructions

PTS4.1

Phone: 1-888-967-5224
Website: workaci.com

GENERAL INFORMATION

The PTS4.1 converts two digital (increase or decrease) signals from relay contact closures, transistors, or triac inputs into a proportional pneumatic signal of 0-10, 5-15 or 0-15 psig (jumper selectable). The pneumatic output increases when the UP input is on, or decreases when the DOWN input is on. The pneumatic output changes full scale (from minimum to maximum) in 90 seconds with 255 steps of resolution. The PTS4.1's closed loop electronic design will maintain the last commanded pneumatic pressure. An on-board microprocessor measures the signal input and a solid-state pressure transducer measures branch line pressure. The PTS4.1 uses these two values to automatically increase or decrease branch line air pressure. In the event of a power failure, both PTS4.1 valves close, shutting off main air and branch line bleed. If a power brown-out occurs, the PTS4.1 automatically reboots its on-board processor. During a power brown-out, power to the processor on the PTS4.1 is shut down, while the pressure output remains the same. When proper power level is restored, processor automatically powers up and branch pressure output defaults to 0 psig.

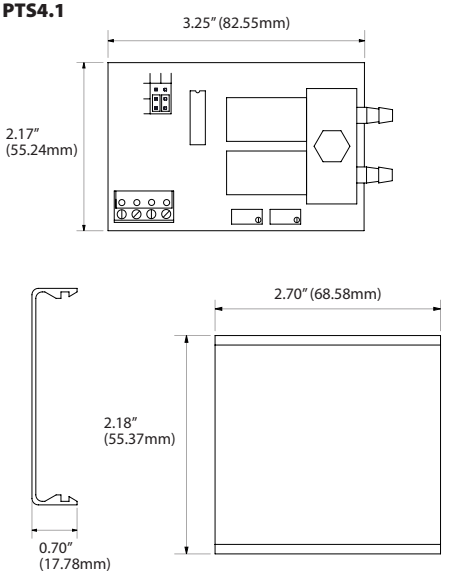
MOUNTING INSTRUCTIONS

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.**

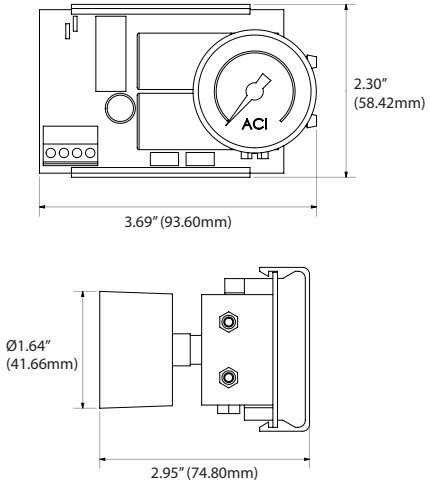
The gauge port will accept a miniature 1/8"-27 FNPT back-ported pressure gauge to allow direct reading of branch line pressure. The gauge should be sealed by Teflon sealing tape, and should be tightened just snug. A backup wrench should be used to hold the manifold.

FIGURE 1: DIMENSIONS

PTS4.1



PTS4.1 With Gauge



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Version: 7.0
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MOUNTING INSTRUCTIONS
(CONTINUED)

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.

FIGURE 3: INSTALLATION

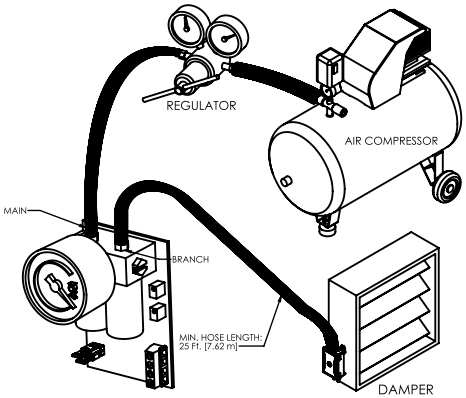
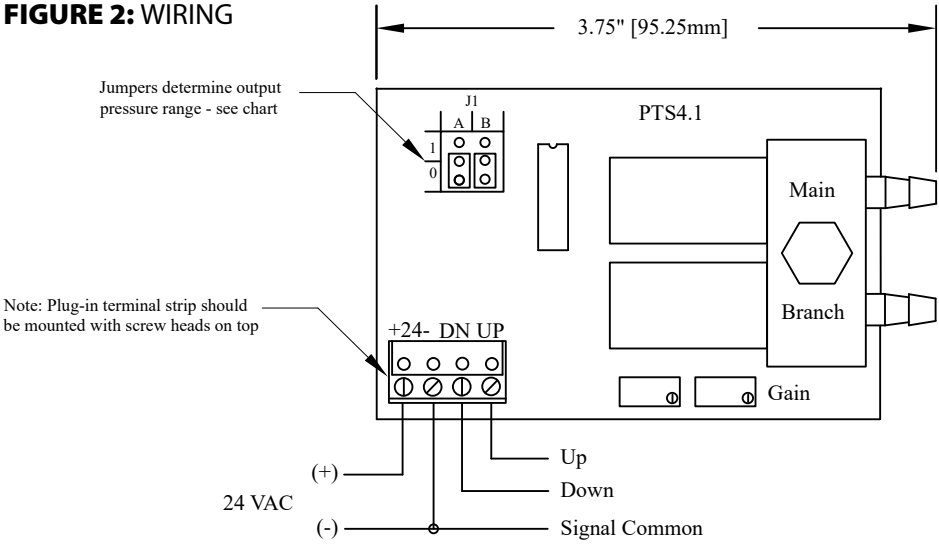
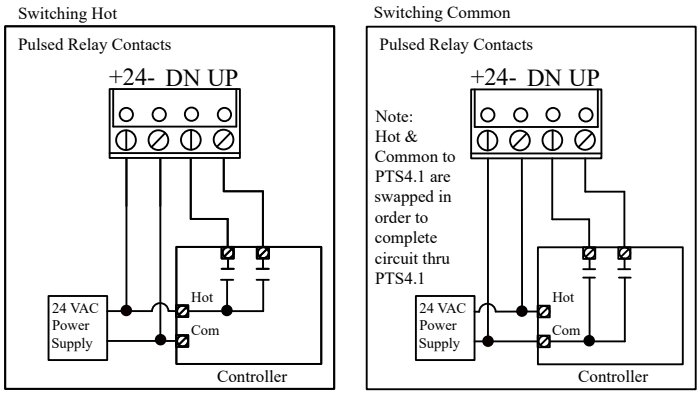


FIGURE 2: WIRING





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MOUNTING INSTRUCTIONS*(CONTINUED)*

This unit requires at least two cubic inches (32.7 cu. cm) of branch air line capacity to operate without valve oscillation, and main air must be minimum of 2 psi (13.8 kPa) above highest desired branch output pressure.

WIRING INSTRUCTIONS

• Remove power before wiring. Never connect or disconnect wiring with power applied.

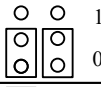
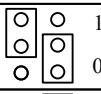
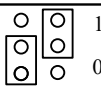
• When using a shielded cable, ground the shield only at the controller end. Grounding both ends can cause a ground loop.

• It is recommended you use an isolated UL-listed class 2 transformer when powering the unit with 24 VAC. Failure to wire the devices with the correct polarity when sharing transformers may result in damage to any device powered by the shared transformer.

•If the 24 VAC power is shared with devices that have coils such as relays, solenoids, or other inductors, each coil must have an MOV, DC/AC Transord, Transient Voltage Suppressor (ACI Part: 142583), or diode, connects to the positive side of the power supply. Without these snubbers, coils prduce very large voltage spikes when de-energizing that can cause malfunction or destruction of electronic circuits.

•All wiring must comply with all local and National Electric Codes.

FIGURE 4: JUMPER SETTINGS

Pressure Output Range	Jumper J1 A B
0-10 psi 0-69 kPa	 1 0
5-15 psi 94-103 kPa	 1 0
0-15 psi 0-103 kPa	 1 0

For Testing Only

Output Full 15 psi 103 kPa	 1 0

FIELD CALIBRATION

The PTS4.1 output is factory calibrated in all jumper selectable pressure output ranges. Three output ranges can be selected to accommodate the range of the actuator by placement of the jumpers on J1 jumper block. **Note:** Do Not make any adjustments to zero or gain potentiometers.

1. Make sure the up/down signal inputs are disconnected. This will eliminate interruption by unexpected control signals.
2. Setting the output pressure range. Output pressure ranges are made by jumper selection on jumper block J1. Refer to the chart next to the wiring diagram or the legend imprinted on the PTS4.1 printed circuit board. Set jumper positions for one of the ranges described. Note: Be sure the MAIN air pressure is greater than the desired maximum branch output pressure. Jumper position A1/B1 will produce only the maximum calibrated output (15 psig standard) and will not modulate in this position. This jumper position is used for testing purposes only.

Connect the normally open (NO) terminals of two separate relays (or triac inputs) to the "UP" and "DN" inputs. A signal to both up and down inputs for 3 seconds will cause branch line pressure to drop to 0 psi. Connect one side of the relay(s) to terminal 24 (+) on the PTS4.1.

Connect power leads to 24 (+) and (-) on the PTS4.1, and power up.

If a power brownout occurs, the PTS4.1 automatically reboots (resets) its on-board processor. During a power brownout, power to the processor on the PTS4.1 is shut down, but pressure output remains same. When proper power level is restored, processor automatically powers up, and branch pressure output defaults to 0 psig.

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PRODUCT SPECIFICATIONS

NON-SPECIFIC INFORMATION	
Supply Voltage:	24 VAC +/-10% at terminals | 50 or 60 Hz
Power Consumption:	350 mAAC, 200 mADC Maximum
Digital Input Signal Source:	Two (2) Relay Contact Closures, Transistors or TRIACs (no accessories required)
Digital Input Signal Trigger Level (@ Impedance):	9-24 VAC @ 750Ω
Rate of Change:	90 Seconds
Air Supply Pressure:	25 psig (172 kPa) maximum, 20 psig (138 kPa) minimum
Output Pressure Range:	0-10 psig (0-68.95 kPa), 5-15 psig (34.47-103.43 kPa), or 0-15 psig (0-103.43 kPa)
Accuracy:	2% @ room temperature, 3% @ full range of operating temperature
Air Flow:	Supply valves @ 20 psig (138 kPa) main/15 psig (103 kPa) out, 2300 scim, Branch Line requires 2 in^3 or 33.78 cm^3 (min) | Unit requires min. of 25 ft of 1/4" O.D. poly tubing
Filtering:	Furnished with integral-in-barb 80-100 micron filter (Part # PN004)
Connections:	90° Pluggable Screw Terminal Blocks
Wire Size:	16 (1.31 mm^2) to 26 AWG (0.129 mm^2)
Terminal Block Torque Rating:	0.5 Nm (Minimum); 0.6 Nm (Maximum)
Connections | Pneumatic Tubing Size-Type:	1/4" O.D. nominal (1/8" I.D.) polyethylene
Pneumatic Fitting:	Removeable brass barbed fittings for Main and Branch in machined aluminum manifold Plugged 1/8-27-FNPT gauge port | Gauge installed at additional cost
Gauge Pressure Range (Gauge Models):	0-30 psig (0-200 kPa)
Gauge Pressure Accuracy (Gauge Models):	± 2.5% Midscale (± 3.5% Full Scale)
Operating Temperature Range:	35 to 120°F (1.7 to 48.9°C)
Operating Humidity Range:	10 to 95% non-condensing
Storage Temperature:	-10 to 150°F (-23.3 to 65.5°C)

WARRANTY

The PTS4.1 Series is covered by ACI's Two (2) Year Limited Warranty, which is located in the front of ACI'S SENSORS & TRANSMITTERS CATALOG or can be found on ACI's website: www.workaci.com.

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