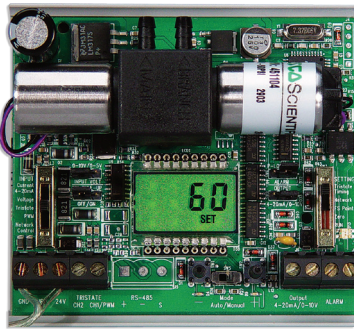


# EP3

## Electropneumatic Transducer



CE available

### NOTICE

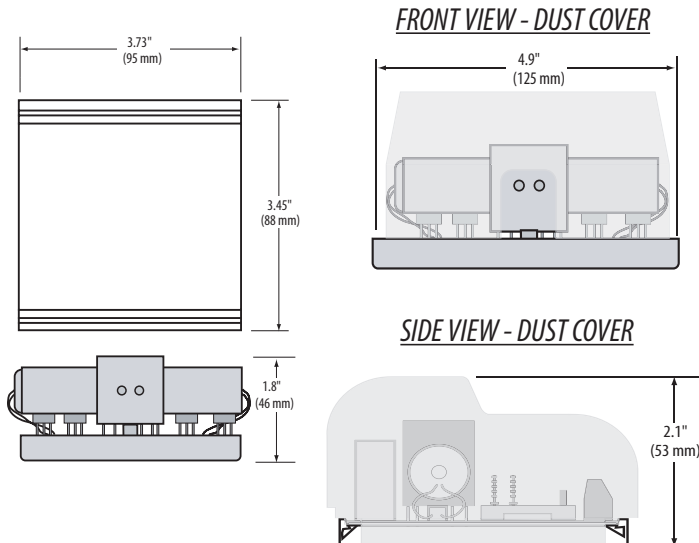
- This product is not intended for life or safety applications.
- Do not install this product in hazardous or classified locations.
- Read and understand the instructions before installing this product.
- Turn off all power supplying equipment before working on it.
- The installer is responsible for conformance to all applicable codes.

No responsibility is assumed by Veris Industries for any consequences arising out of the use of this material.

### PRODUCT IDENTIFICATION

Output	Feedback	Failsafe	US or EU	Option
EP3 <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0 = None 3 = Analog output: 0-10VDC or 4-20mA (selectable)	3 = Pressure Loss Alarm or Manual Mode Alarm	0 = None 1 = Vent on power fail	S = Standard C = CE (CE versions include cover plate)	Blank = None 2 = EP Cover Plate

### DIMENSIONS



### SPECIFICATIONS

Input Power	22-30VDC, 20-30VAC, 47-63 Hz, 150mA max. average, 350mA peak
Control Input	4-20mA, (0-10V, 0-5V; jumper selectable), Tri-State, PWM
Input Impedance	4-20mA, 250 Ω; 0-5/0-10V, 10 kΩ
Manual Override	Digital pushbutton adjust, switch selectable mode
Alarm Contact	100mA@30VAC/DC (Pressure loss, manual mode, jumper selectable)
Accuracy	1% F.S.; combined linearity, hysteresis, repeatability @20°C ambient
Temperature Coefficient	±0.1%/°C
Operational Temperature Range	5°C to 60°C (41° to 140°F)
Operating Humidity Range	10-90% RH, non-condensing
SCIM	523 in <sup>3</sup> /min@45 psi (8520 cm <sup>3</sup> /min@310.3 kPa); 333 in <sup>3</sup> /min@20 psi (5407 cm <sup>3</sup> /min@137.9 kPa)
Supply Pressure	Minimum (0.1 psi plus user F.S. pressure), maximum (45 psig)
Control Range	User programmable zero selectable from 0-25 psi: full scale 0-25 psi
Pressure Differential	0.1 psig (supply to branch)
Pressure Indication	Electronic, 3 1/2 digit backlit LCD
Minimum Tubing Length	15 feet*
Port Connection	1/8 i.d. poly tubing
Media Connection	Clean dry air or inert gas. Not for use with oxygen service

\* For shorter tubing runs use the Veris AA45 Pneumatic Capacitor  
EMC Conformance: EN 61000-6-3 Class B:2007+A1 2011, EN 61000-6-1:2007, EN 61000-3-2:2000, EN 61000-3-3:2001  
EMC Special Note: connect this product to a DC distribution network or an AC/DC power adapter with proper surge protection (EN 6100-6-1:2001 specification requirements).

### INSTALLATION



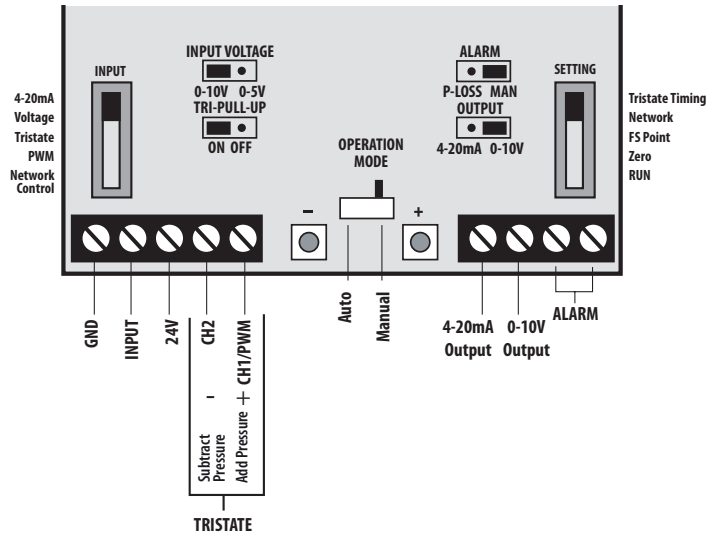
Observe precautions for handling static sensitive devices to avoid damage to the circuitry that is not covered under the factory warranty.

1. Mount the EP3 transducer using the screws provided.
2. Configure the jumpers for desired operation as shown (page 2).
3. Wire the transducer as shown in the wiring diagram (page 3).
4. Attach pressure tubing to the hose barbs. Observe MAIN and BRANCH port labels.  
Use flexible 1/8" I.D. poly tubing for main and branch pneumatic connections.  
**Main supply pressure must not exceed 45 psig.**

**CONFIGURATION**

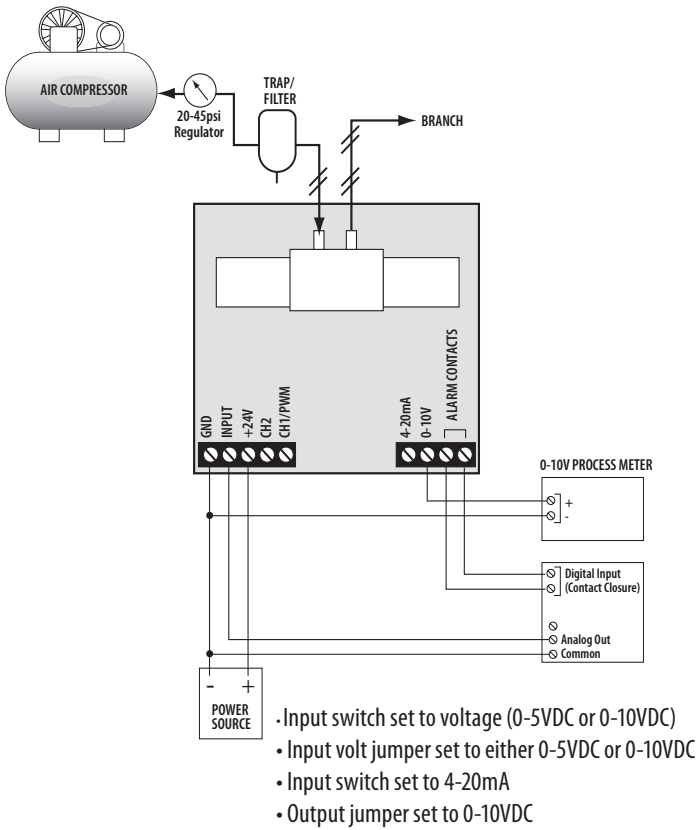
Switch/Jumper	Description
Input	User selectable slide switch: current (4-20 mA), voltage (0-5/0-10 V), Tristate, or PWM (min 0.01-0.60 sec, max 1.0-75.0 sec). Note: the Network Control option is disabled.
Input Voltage*	If voltage input is selected, use this jumper to choose 0-5 or 0-10 V.
Tri Pull-up	If tristate input is selected, use this jumper to turn the pull-up on or off.
Alarm	Phase loss or manual
Output	Use this jumper to select 4-20 mA or 0-10 V output (feedback status for branch pressure).
Setting	User selectable slide switch: Tristate timing (min 1 sec; max 600 sec, default 60 sec), FS Point (scale point user programmable 0-25 psi), Zero (user programmable 0-25 psig), Run. Note: the Network option is disabled.
Mode	Auto for normal operation; Manual to adjust pressure. Set this switch last.

\*EP3 accepts DC input only. To use with AC input, include a Veris AA49 Triac Adapter in series between the input voltage and the EP3.

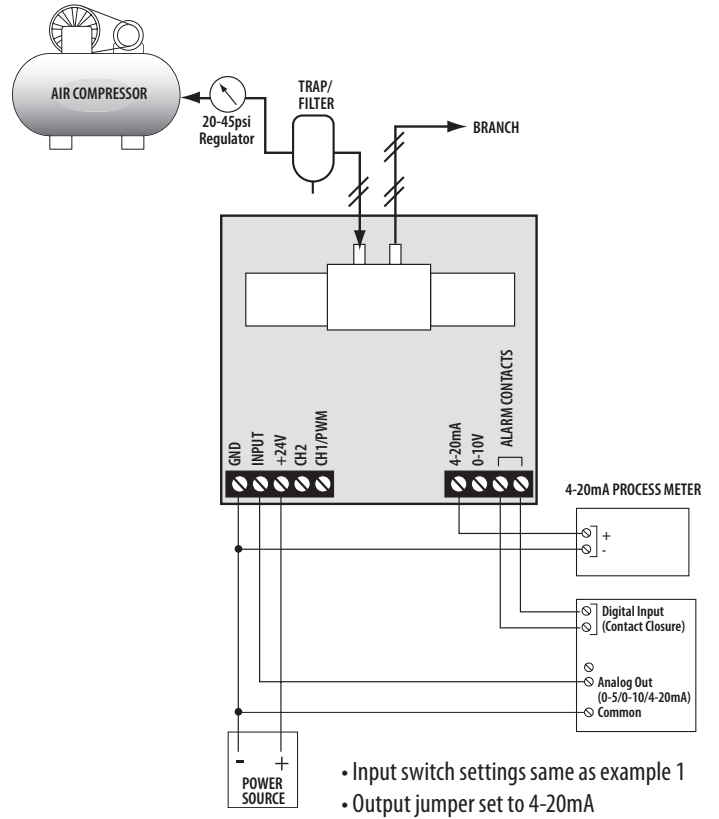


**WIRING**

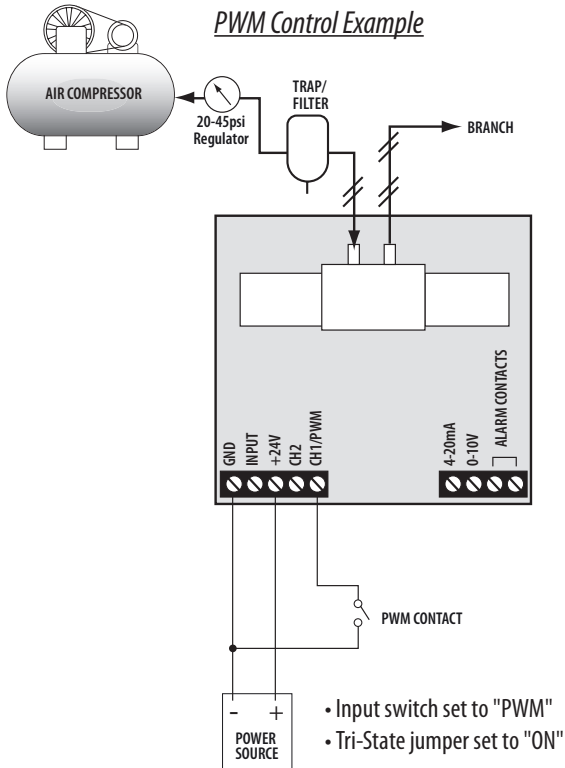
*Current/voltage Control, Voltage Output Example*



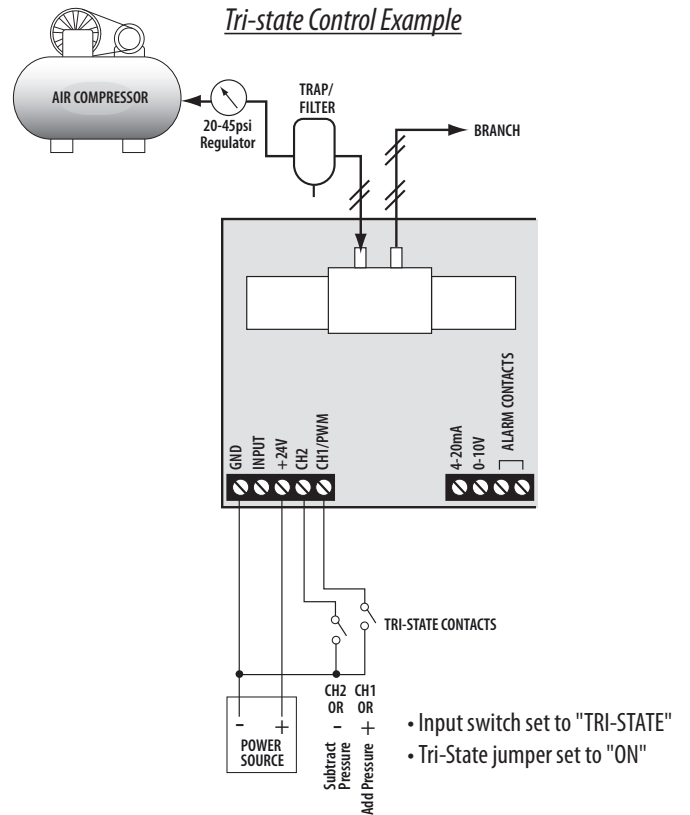
*Current/voltage Control, Current Output Example*



*PWM Control Example*



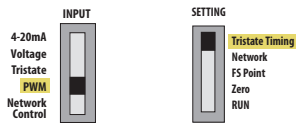
*Tri-state Control Example*



**SPECIAL INSTRUCTIONS**

**PWM Mode**

To set the minimum pulse value, adjust the Input and Setting switches as shown:



"LO" momentarily appears on the LCD, indicating that the minimum pulse width is being set. Use the (+) and (-) buttons to increase or decrease this value. To set the maximum pulse width push both buttons simultaneously. "HI" momentarily appears, indicating that the maximum pulse width is being set. Push both buttons to toggle between the "HI" and "LO" settings. To save these settings, move the Setting slide switch to RUN.

If the controller receives a pulse that is shorter than the minimum pulse width, the output goes to 0% of the range set with the zero and span settings. If the controller sees a pulse that is the same or longer than the maximum pulse width, the output goes to 100% of the range selected with the zero and span settings.

In this example the minimum pulse width is set to 0.60 sec, the maximum is set to 10 sec, zero is set to 0, and span is set to 10 psi. Assume the controller receives a pulse of 5 sec duration:

$$\text{Pulse range} = 10 \text{ sec} - 0.60 \text{ sec} = 9.4 \text{ sec}$$

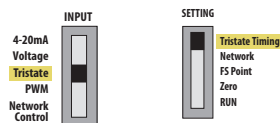
$$\text{Pressure range} = \text{span} - \text{zero} = 10 - 0 = 10$$

$$\text{Output} = (5 / 9.4) \times 10 = 5.3 \text{ psi}$$

**Tristate Mode**

Travelttime is defined as the contact closure time required to go from zero to full scale. If travelttime is set to 10 seconds and the TRISTATE 1 input is connected to ground for 5 seconds, the output is 50%. If the input is connected to ground for another 5 seconds, the output is 100%. If TRISTATE 2 (the decreasing input) is grounded for 10 seconds, the products output return to 0%.

To set the travel time, adjust the Setting and Input switches as shown:



Press the (+) or (-) buttons to increase or decrease the travel time. Minimum travel time is 1 second; maximum is 600 seconds. To save these settings, move the Setting slide switch to RUN. The device's internal counters measure the contact closure time with 100 Hz resolution.

Note: If Tristate input is to be operated by a triac output (Veris AA49), use an AC relay to provide a dry contact closure to the EP3 input.

**Tubing Length**

Minimum tubing length is 15 feet or an equivalent volume of 2.2 cubic inches. Shorter tubing lengths cause the unit to oscillate.

**Analog Output**

The output is generated from the branch pressure. It is calculated as follows:

FS = Full Scale Point

Zero = Zero setting

In volt mode:

$$\text{Pressure} = (10 / (\text{FS} - \text{Zero})) * \text{Voltage} + \text{Zero}$$

$$\text{Voltage} = (\text{Pressure} - \text{Zero}) / (\text{FS} - \text{Zero}) * 10$$

In current mode:

$$\text{Pressure} = (\text{FS} - \text{Zero}) * ((\text{Current} - 4) / 16) + \text{Zero}$$

$$\text{Current (in mA)} = ((\text{Pressure} - \text{Zero}) / (\text{FS} - \text{Zero})) * 16 + 4$$

Examples:

Zero setting = 5 psi; Span = 20 psi; Branch pressure = 16 psi

Volt mode: Voltage = ((16 - 5) / (20 - 5)) \* 10 = 7.33 V

Current mode: Current = ((16 - 5) / (20 - 5)) \* 16 + 4 = 15.73 mA

**Alarms**

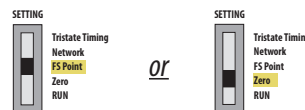
Auto Mode: Alarm contacts are closed in normal operation and are open when no power is applied or when the device is in an alarm state.

Manual Mode: Alarm contacts are open in manual mode setting and closed for normal operation. Move the P-LOSS/MAN jumper to the manual mode setting. You do not need to power cycle the product after moving jumpers or the Auto/Manual switch.

Pressure Loss Alarm: Contacts open when the branch pressure falls and stays below 20% of the desired pressure for a period of 2 minutes.

**FS Point and Zero Setting**

To set the Zero or FS point, move the SETTING slide switch from Run to Zero or FS point setting, respectively.



The 'Set' icon appears on the LCD. Use the (+) and (-) buttons to increase or decrease the pressure setpoints.

**LED Blink Codes**

Slow green	Normal operation
Slow green with one fast red	Manual mode alarm (contacts open)
Slow green with two fast reds	Pressure loss alarm active (contacts open)
Slow red	SETTINGS slide switch not in Run position
Two fast reds	Settings slide switch not in Run position and Alarm (contacts open)
Three fast reds	Over-voltage or over-current fault
Four fast reds	Over pressure on branch side; over 25 psi.