

## Environmental Chamber Pressure Control Panel

### Background:

Emerging Technologies, LLC was called upon to modify an existing pressure / flow measurement panel to include automated backpressure control. Additionally, the panel was to be configured for use inside an existing environmental test chamber. Measurements of airflow and pressure, as well as vacuum flow and pressure, were required. Remote pressure control was required to manipulate the pressure without compromising the environmental chamber.

### Solution:

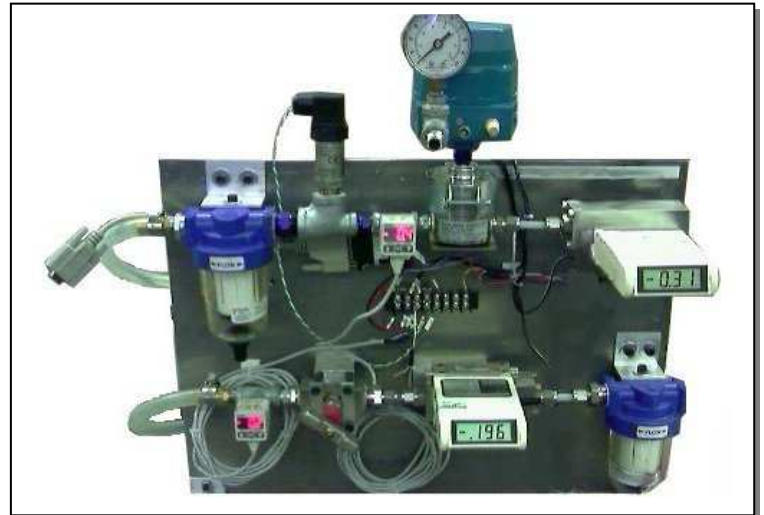
The pressure line is regulated via an electronically controlled backpressure regulator. In the pressure loop, the new electronic controller controls the air pressure emanating from the product. The computer is only required to download pressure control set points. Once set points are loaded into the non-volatile memory of the pressure controller, the computer can be disconnected. The vacuum loop remains under manual control via a manually operated hand valve.

Operating inside the environmental chamber required the panel to be both compact and able to operate within the temperature and humidity control range of the chamber.

Emerging Technologies, LLC prepared a design package for the customer to review before the panel was manufactured. The design packet contained system layout diagrams. Once approved by the customer, the panel was fabricated, tested, and delivered to the customer.

### Special Features:

- Automatic backpressure control.
- Ability to operate inside the environmental test chamber with the device under test.
- Ability to remotely change pressure setpoints from outside the environmental test chamber.



### Customer Benefit:

The customer was able to test their devices inside an environmental chamber without opening the chamber to modify pressure settings using the Emerging Technologies, LLC custom designed environmental chamber panel. The new panel regulated pressures remotely while conveying pressure and flow accurately.

### Components Used:

- Tescom ER3000 Electronic Pressure Controller
- SMC High Precision, Digital Pressure Switches
- Sierra Instruments Mass Flow Meters

### Emerging Technologies, LLC Responsibilities:

- Functional Specification Generation
- ✓ Design / Engineering
- ✓ Fabrication
- Programming – Software
- Programming – Firmware
- Field Installation
- ✓ On-Site Commissioning
- ✓ Post Commissioning Support
- Other

### Technologies:

- Embedded Computers
- Microcontrollers
- Visual Software
- ✓ Control Software
- Data Acquisition
- ✓ Computer Based Control
- ✓ Communications – RS232, RS485
- System Integration
- Other

### Customer Category:

- ✓ OEM
- Custom Equipment
- Utility
- R&D

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Emerging Technologies, LLC.

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