



# EPR-3000

High Precision 3000 psi Electronic Pressure Controller  
Accurate to 0.25% of full scale

# General Specifications

## PRECISE CONTROL UP TO 3000 PSI

The Equilibar EPR-3000 dual valve pressure controller accurately and efficiently controls pressure within a closed system with minimal loss of expensive gases through the exhaust process.

The EPR-3000 is a significant advance in the precision and convenience of electronic pressure control above 1000 psig. Using dual proportional valve construction, the EPR-3000 avoids the waste of inert supply gas sometimes experienced with other controllers. The analog valves also provide high resolution in the range of 0.1%.

PERFORMANCE	EPR-3000 CONTROLLER
Maximum Pressure	3000 PSIG
Maximum Inlet Pressure	3300 PSIG
Full scale pressure accuracy	± 0.25%
Maximum Flow	50 SLPM at 3000 PSIG Supply and 1500 PSIG Setpoint
Repeatability	± 0.08% Full Scale
Zero Shift and Span Shift	0.02% Full Scale / °Celsius
Operating Range / Turndown Ratio	0.5% to 100% Full Scale / 200:1 Turndown
Excess Pressure	102.4% FS Controllable
Burst Pressure	3 X Full Scale
Typical Response Time <sup>1</sup>	100 ms (Adjustable)
Warm-up Time	< 1 Second

<sup>1</sup>Volumes, feed pressures, exhaust pressures and line sizing will determine the limits of response times.

**ATEX**  
**OPTION**   
**AVAILABLE**

**CONTACT EQUILIBAR FOR  
MORE INFORMATION**

OPERATING CONDITIONS	EPR-3000 CONTROLLER
Gas Compatibility	Compatible with all non-corrosive gases
Operating Temperature	-10 to +60 °Celsius
Mounting Altitude Sensitivity	None
Valve Type	Normally Closed
Ingress Protection	IP40
Wetted Materials	302 & 303 Stainless Steel, Viton®, Silicone RTV, Brass, 400 Series Stainless Steel, Silicon, Glass.

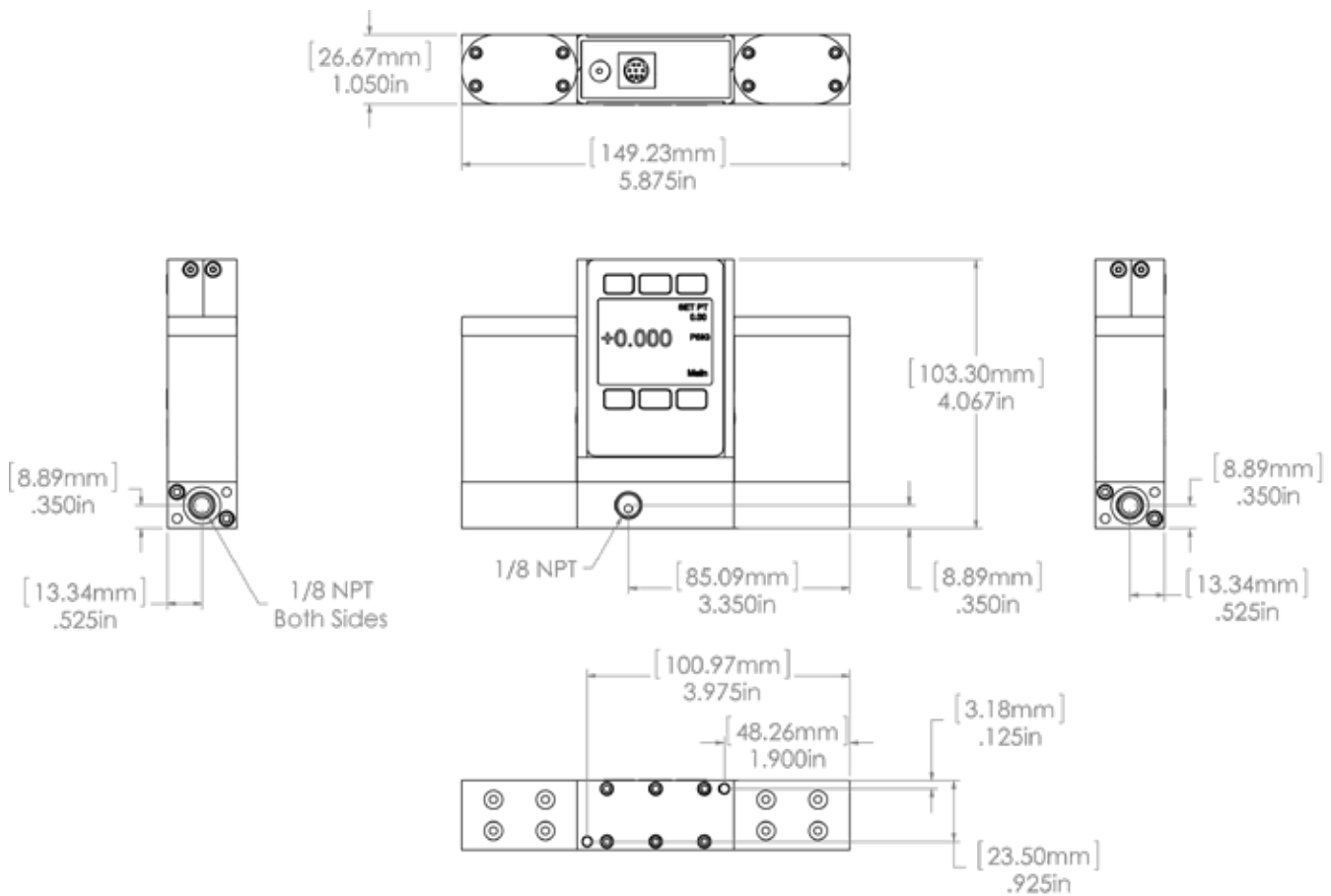
Viton® is a registered trademark of DuPont.

COMMUNICATION / POWER	EPR-3000 CONTROLLER
Monochrome LCD or Color TFT Display with integrated touchpad	Control Input / Displays Pressure
Digital Input / Output Signal <sup>1</sup> Options	RS-232 Serial / RS-485 Serial / ModBus
Analog Input / Output Signal <sup>2</sup> Options	0-5 Vdc
Optional Secondary Analog Input/Output Signal <sup>2</sup>	0-5 Vdc
Electrical Connection Options	8 Pin Mini-DIN
Supply Voltage	12-30 Vdc
Supply Current	0.250 Amp

<sup>1</sup>The Digital Output Signal communicates Pressure  
<sup>2</sup>The Analog Output Signal and Optional Secondary Analog Output Signal communicate Pressure

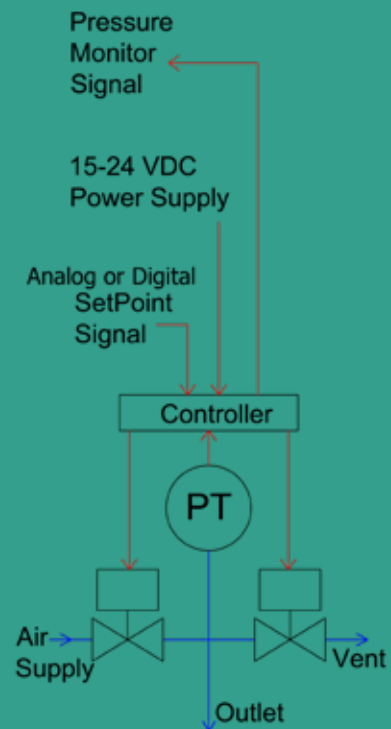
MECHANICAL SPECIFICATIONS	MECHANICAL DIMENSIONS	PROCESS CONNECTIONS
EPR-3000 Standard Range	4.067"H x 5.875"W x 1.050"D	1/8" NPT Female

# EPR-3000 Dimensional Drawing



## How it Works

Two valve pressure controllers include a “fill” and “vent” valve. Outlet pressure is sensed and controlled through a type of PID loop. While many industrial pressure controllers utilize binary fill and vent valves, or analog fill valves with binary vent valves, the EPR-3000 uses two analog valves for highly precise and resolute control throughout the entire range.



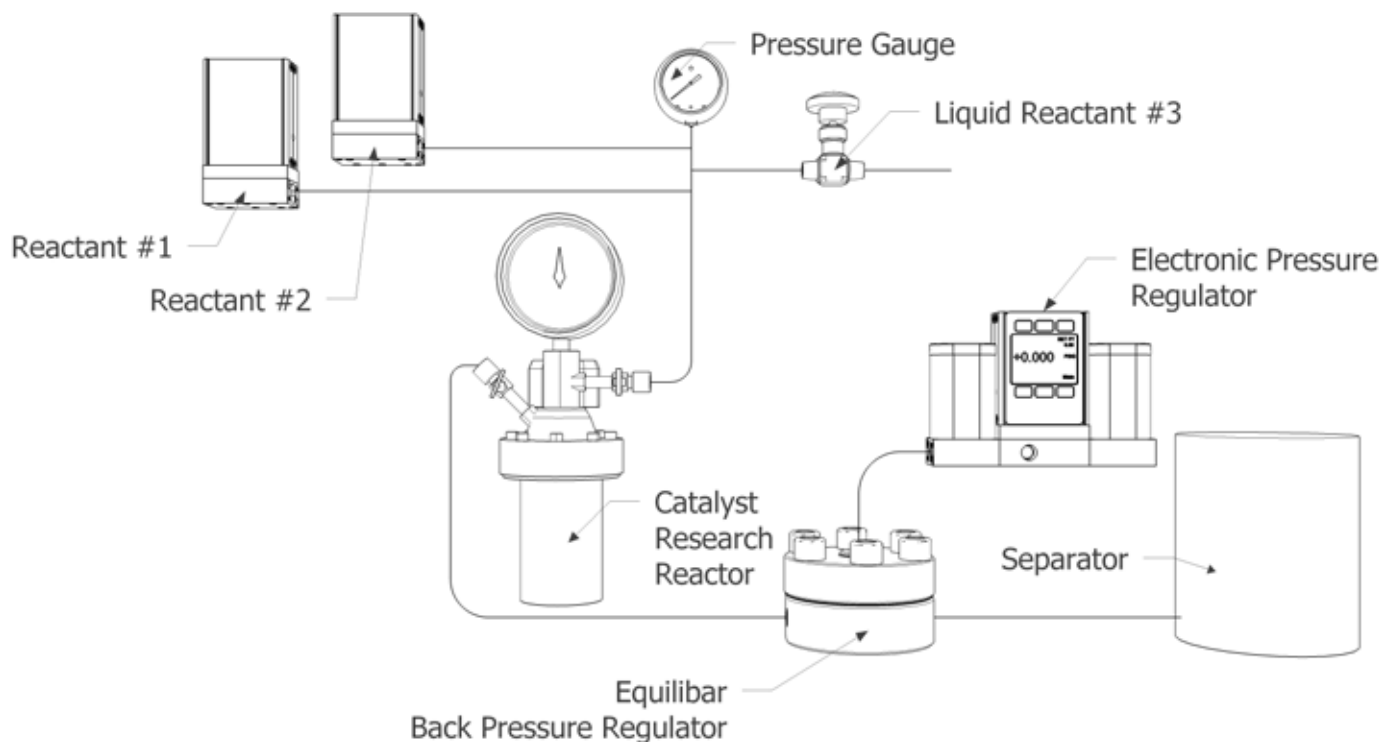
# Key Performance Features and Applications

## KEY PERFORMANCE FEATURES

- Proportional inlet/outlet valves for maximum stability
- No gas wasted at steady state
- Very high resolution with 0.25% accuracy
- Digital or analog communications
- Direct control from the keypad

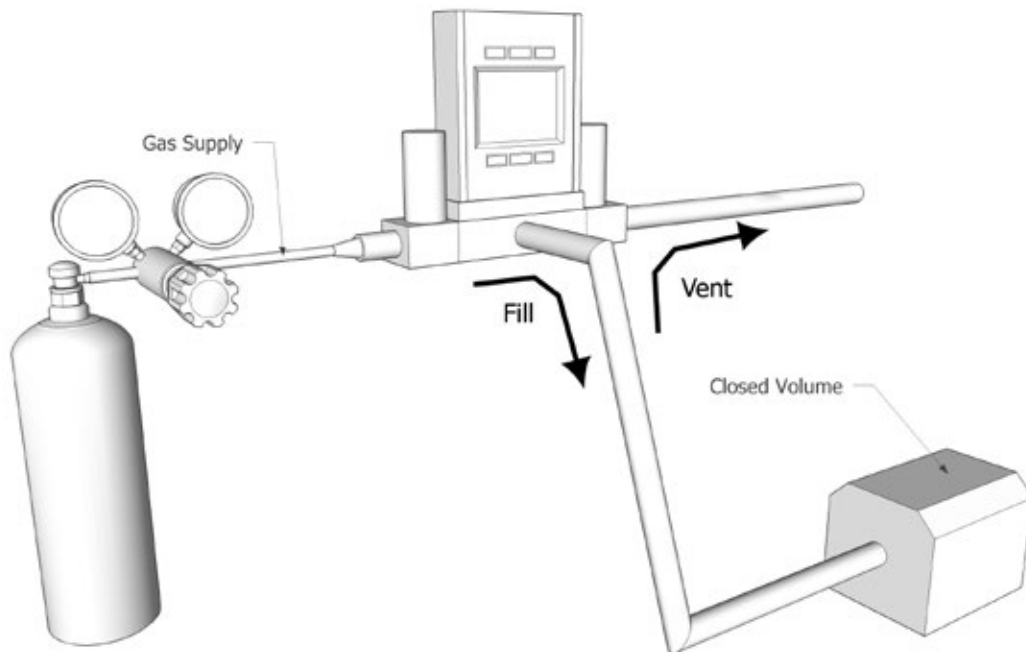
## CATALYST RESEARCH REACTOR CONTROL

The EPR-3000 is designed for static to low-flow applications of inert gas such as nitrogen or air. One common application is to provide a high pressure pilot signal for dome-loaded regulators requiring pressures above 1000 psig. In the schematic below, the EPR-3000 is used to control the output pressure of a catalyst research reactor. Because both the EPR-3000 and the Equilibar® back pressure regulator have no significant hysteresis or dead-band, it is possible to precisely control reaction conditions even with highly varying process flow rates.



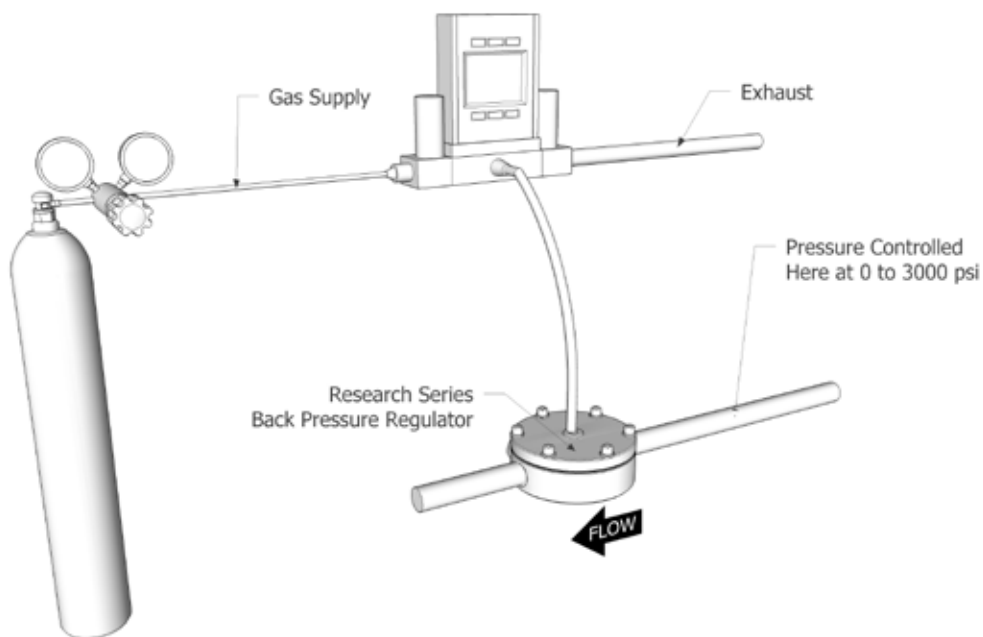
# Common Applications

## PRECISION PRESSURE CONTROL



The EPR-3000 accurately controls pressure by either adding or venting compressed gas as required. No gas is consumed in the steady state.

## ELECTRONIC BACK PRESSURE CONTROL



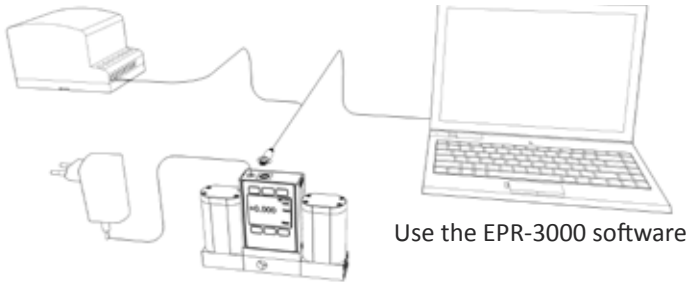
The EPR-3000 is an excellent pilot regulator to electronically control an Equilibar® precision back pressure regulator.

# Power & Control Options

## CONVENIENT COMMUNICATION & CONNECTIONS

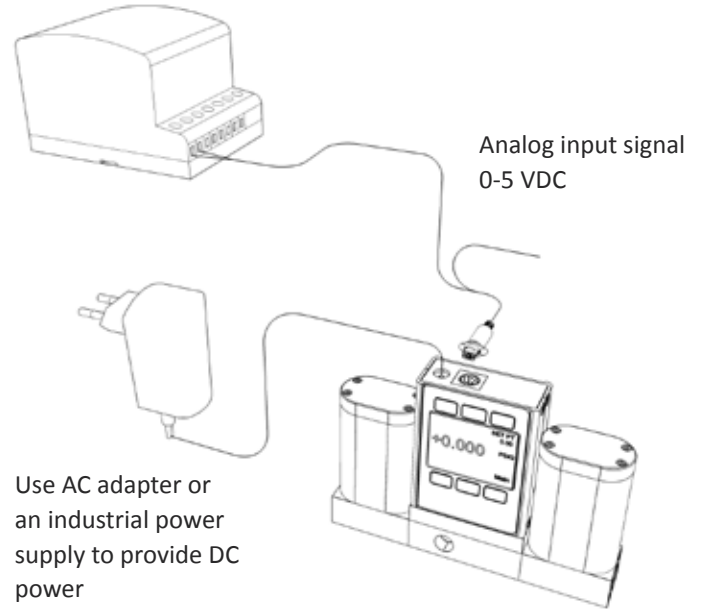
The EPR-3000 can be quickly commanded using the convenient keypad interface. The EPR can be automated through either the analog interface or by use of a Serial (RS-232 or RS-485) connection. Power supply for the unit (12-30 VDC) can be provided through an included power brick, or provided through the DIN connector.

Use the 8-Pin cable and a computer to provide an RS232 or RS485 interface



Use the EPR-3000 software

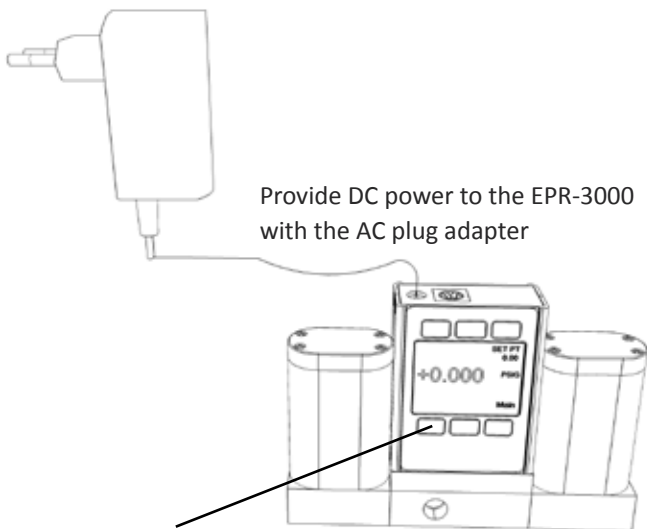
Use the AC adapter or an industrial power supply to provide DC power



Analog input signal  
0-5 VDC

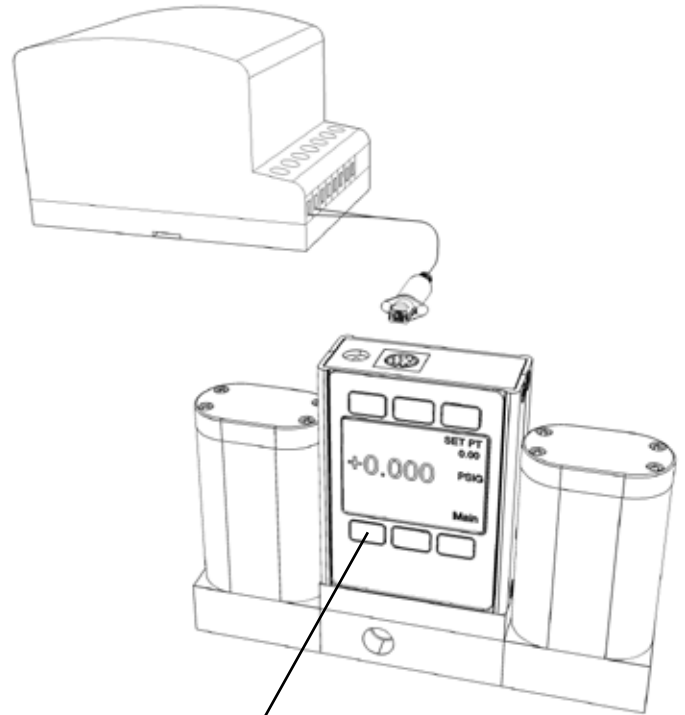
Use AC adapter or an industrial power supply to provide DC power

Use an industrial 24VDC power supply to provide DC power



Provide DC power to the EPR-3000 with the AC plug adapter

Use the push buttons and CCD screen to manually adjust the pressure



Use the push buttons and CCD screen to manually adjust the pressure

# About Equilibar

Equilibar provides innovative and robust pressure control technology for researchers and engineers worldwide. We are proud to design, manufacture, and test our patented back pressure regulators in our factory overlooking the Blue Ridge Mountains near Asheville, NC.

## APPLICATION ENGINEERING— WHAT SETS US APART

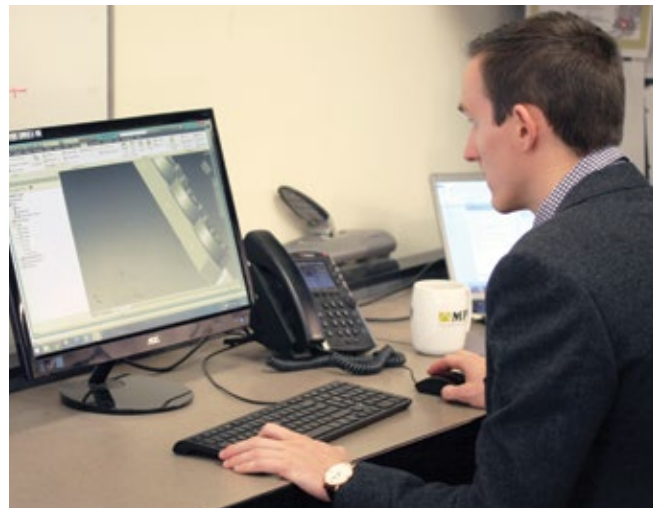
Unlike mass-market regulator distributors, we focus on working with you, the scientist or engineer with a complex pressure control scenario.

Our application engineers work collaboratively with clients to identify the optimal model, trim, and diaphragm for each application's unique challenges. No matter where you are on the globe, you can stay in close contact with your engineer by email, telephone, videoconferencing, or fax.

After installation, your application engineer will support you with start-up information and fine-tuning as needed.



Each application is reviewed by our engineering team to ensure quality performance of our products.



Our engineers offer custom designed solutions for the most difficult pressure control challenges. Feel free to contact us to discuss your situation.

Equilibar, LLC  
320 Rutledge Rd.  
Fletcher, North Carolina 28732  
United States  
Tel: +1-828-650-6590  
Fax: +1-801-504-4439  
Monday - Friday  
8:00 AM - 5:00 PM EST  
12:00 - 21:00 GMT  
[inquiry@equilibar.com](mailto:inquiry@equilibar.com)



Made in the  
**USA**

Equilibar's quality system is  
**ISO 9001:2015** certified.