

# PRO-50 Instrument Supply Regulator

## Installation Booklet



### INTRODUCTIONS

PRO-50 Series regulators are designed to be a compact, lightweight option for providing controlled and reduced pressures for instrumentation. Generally used to constantly control supply pressure to pneumatic and electro-pneumatic controllers, these direct-operated regulators are rugged enough to be used in most air or gas applications.

Engineered to provide clean supply pressure to meet the accuracy, repeatability and hysteresis demands of digital instrumentation, the PRO-50 is also well suited to supply spray guns, air chucks, and air jets.

### SPECIFICATIONS

#### Outlet Connection Styles and Sizes

1/4 inch NPT.

#### Maximum Inlet Pressure (Body Rating)

250 Psig (1,724 kPag)

#### Maximum Emergency Outlet Pressure

50 Psi (345 kPa) over outlet pressure setting.

#### Outlet Pressure Ranges

- 0 to 35 Psig (0 to 241 kPag)
- 0 to 60 Psig (0 to 414 kPag)
- 0 to 125 Psig (0 to 862 kPag)

#### Temperature Capabilities

##### With Nitrile:

Polyethylene Filter<sup>(1)</sup>: -40 to 180°F (-40 to 82°C)  
Stainless Steel Filter (NACE): -40 to 180°F (-40 to 82°C)

##### With Viton®:

Glass Filter: 0 to 300°F (-18 to 149°C)  
Stainless Steel (NACE): 0 to 300°F (-18 to 149°C)

#### Approximate Weights

1 lb. (0.5 Kg)

#### Filter Capabilities

**Free Area:** 12 times pipe area.

##### Micron Rating:

Polyethylene Filter<sup>(1)</sup> (Standard) - 5 microns.  
Glass Filter (High Temp.) - 5 microns.  
Stainless Steel Filter (Optional) - 40 microns.

### NOTES

1 - Do not use for high aromatic hydrocarbon service.

### INSTALLATION

#### SAFETY CAUTION:

**Only well trained experienced technicians should perform these procedures. Use safe work practices and lock out procedures when isolating valves, actuators, and instrumentation. It is also important to wear the proper protective equipment when performing any installation or maintenance activity. Use only parts and materials rated for the process being used, operating conditions, and environmental conditions products will be used in.**

To avoid personal injury, equipment damage, leakage, or bursting of pressure containing parts, do not install the regulator where service conditions could exceed the limits stated in this manual, sales bulletin, or on the equipment nameplates. Use government codes, accepted industry standards and good piping practices, and select proper pressure-relieving equipment for protection of your installation.

The PRO-50 regulator may vent some supply gas to the atmosphere, always be aware of flammable process and instrument gas. The accumulation of vented gas could cause damage, injury, fire, or explosion. Vent hazardous gas service to a safe location.

#### OVERPRESSURE PROTECTION:

PRO-50 regulators are equipped with a low-capacity internal relief valve for minor seat leak only. Additional overpressure protections (A pressure-limiting or pressure-relieving device) will need to be installed if the maximum inlet pressure will exceed the maximum outlet pressure rating or the maximum pressure rating of the downstream equipment.

**Warning:** Using the PRO-50 regulator within the set pressure range and at normal operating conditions does not eliminate the possibility of damage, debris, and clogs from external sources. Regulators should be inspected for damage regularly, especially after any overpressure situation.

#### INSTALLATION STEPS:

PRO-50 regulators may be installed in any position. Considerations must be made to protect the atmospheric pressure vent from filling with foreign material such as rain, snow, and dirt. Standard vent and drain positions are set for properly mounting a PRO-50 to a Siemens PS2 positioner (refer to Figure 1). Both the inlet and outlet are marked "IN" and "OUT" accordingly. If a pressure gauge is not installed in a gauge outlet connection, a pipe plug must be used to seal the connection.



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## Installation Booklet

### INSTALLATION (Continued)

#### INSTALLATION STEPS (Continued):

- 1 Consider installing upstream and downstream block and vent valves in order to aid in regulator shutdown.
- 2 Always apply quality grade pipe compound to the male pipe threads before making connections. Do not let the pipe compound enter the regulator.
- 3 Keep drainage in mind and orient the drain valve on the dripwell to the lowest possible point. This orientation might be improved by rotating the dripwell with respect to the body. Refer to Figures 1 & 2.
- 4 Protect vent holes by orientating them to the lowest possible position on the spring case or by installing additional vent valves or fixtures (such as installing a remote vent tube to the ¼" NPT vent hole). Spring case vent hole orientation may be changed by rotating the spring case with respect to the body, refer to Figure 1.
- 5 Using ¼" NPT tube or pipe fittings, install the PRO-50 regulator so that flow is from the 'IN' to the 'OUT' connection.
- 6 Install a gauge or pipe plug into the second ¼" NPT outlet.

- 7 Mounting bolts used to install the PRO-50 regulator should fit tight to the body of the regulator and the bolt threads should engage at least two full threads. If a spacer is required to adapt the available mounting bolts for the installation application, a spacer with an internal diameter of 0.32" (8.12 mm) is ideal.

#### START UP AND ADJUSTMENT:

- 1 Read the SAFETY CAUTION on Page 1.
- 2 With the downstream equipment properly adjusted, slowly open the upstream and downstream shutoff or block valves if present and monitor the pressure using pressure gauges.

**WARNING:** Never adjust the adjusting screw to produce an outlet pressure higher than the upper limit of the outlet pressure range for the control spring being used. Should the desired outlet pressure be outside the range of the control spring, it will be necessary to install properly rated control spring.

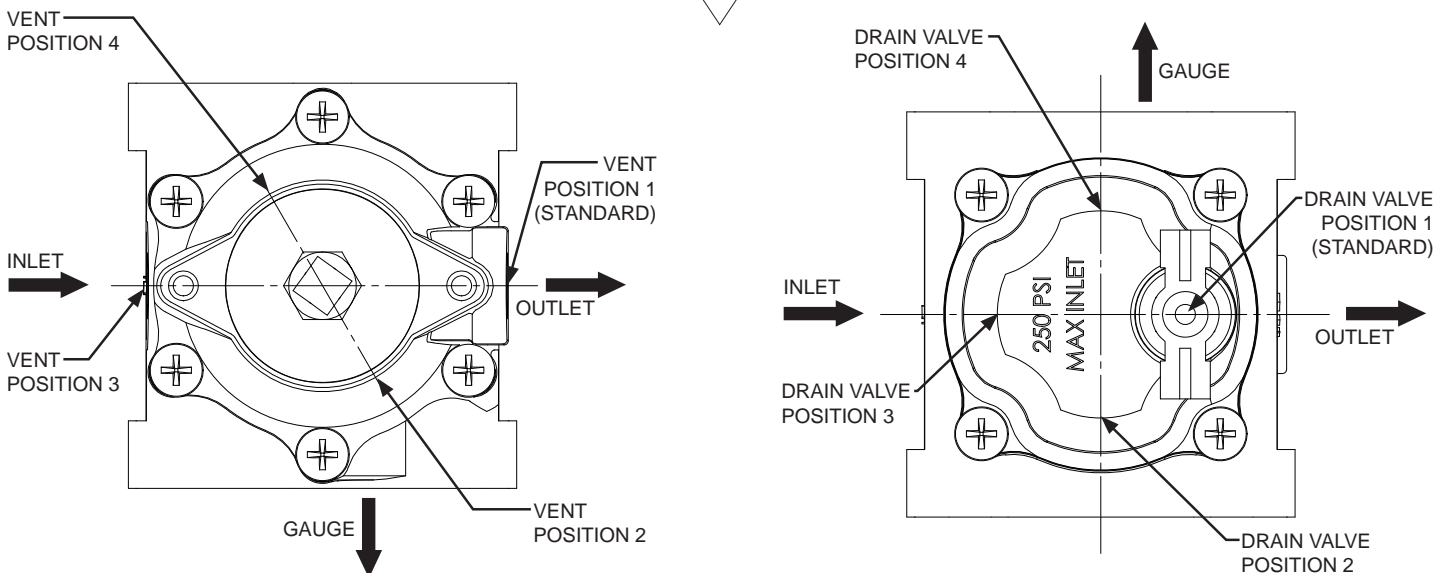
- 3 If adjustment is necessary after the outlet pressure has been monitored, loosen the locknut and turn the adjusting screw or handwheel:

**Clockwise:** Increases outlet pressure.

**Counterclockwise:** Decreases outlet pressure.

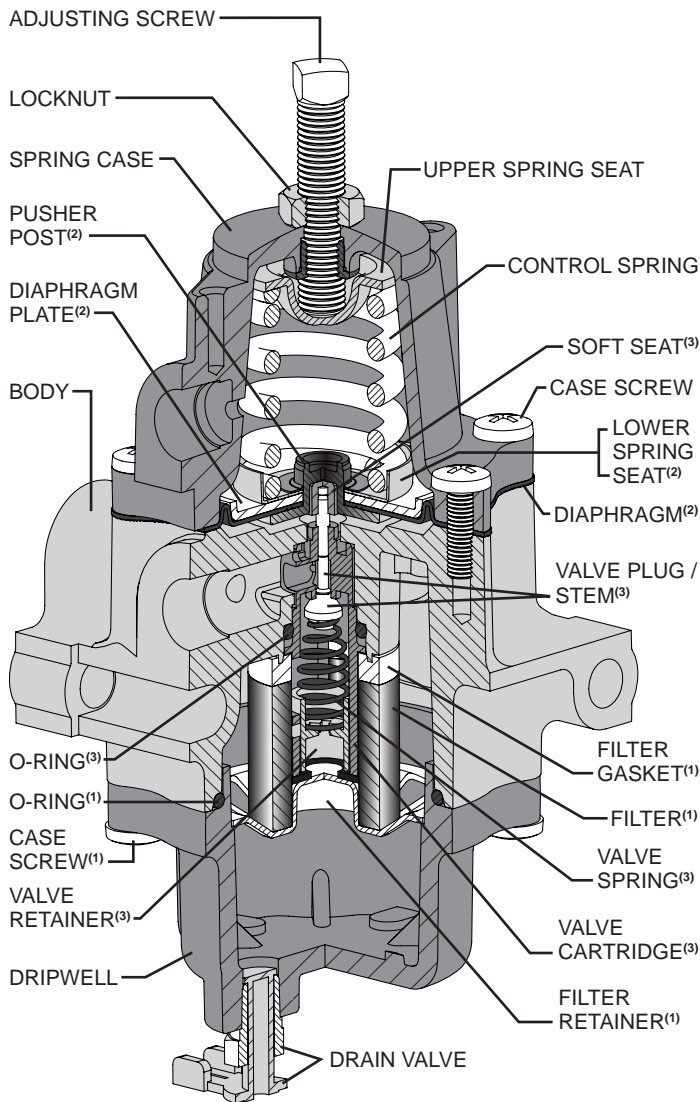
Retighten the locknut to hold the adjustment position.

Figure 1 PRO-50 Vent and Drain Positions



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RECOMMENDED SPARE PARTS LIST	
NOTE KEYS	PART DESCRIPTION
(1)	<b>COMMON SPARE PARTS:</b> O-RING, CASE SCREWS (X4), FILTER, FILTER RETAINER, FILTER GASKET
(2)	<b>DIAPHRAGM ASSEMBLY - INCLUDES:</b> DIAPHRAGM, DIAPHRAGM PLATE, PUSHER POST, LOWER SPRING SEAT
(3)	<b>VALVE CARTRIDGE ASSEMBLY - INCLUDES:</b> VALVE CARTRIDGE, VALVE RETAINER, VALVE SPRING, VALVE PLUG/STEM, SOFT SEAT, O-RING
<b>NOTES</b>	ALL THE ABOVE RECOMMENDED SPARE PARTS ARE INCLUDED IN THE REPAIR KIT.

PRO-50 REGULATOR REPAIR KITS	
PART NUMBER	KIT DESCRIPTION
RPRO50RX01D	STANDARD REPAIR KIT
RPRO50RX11D	NACE REPAIR KIT
<b>NOTES</b>	REPAIR KITS INCLUDE ALL REPLACEMENT PARTS LISTED IN THE RECOMMENDED SPARE PARTS LIST.

**Figure 2** Typical PRO-50 Regulator Assembly Diagram and Recommended Spare Parts List / Repair Kit Part Numbers

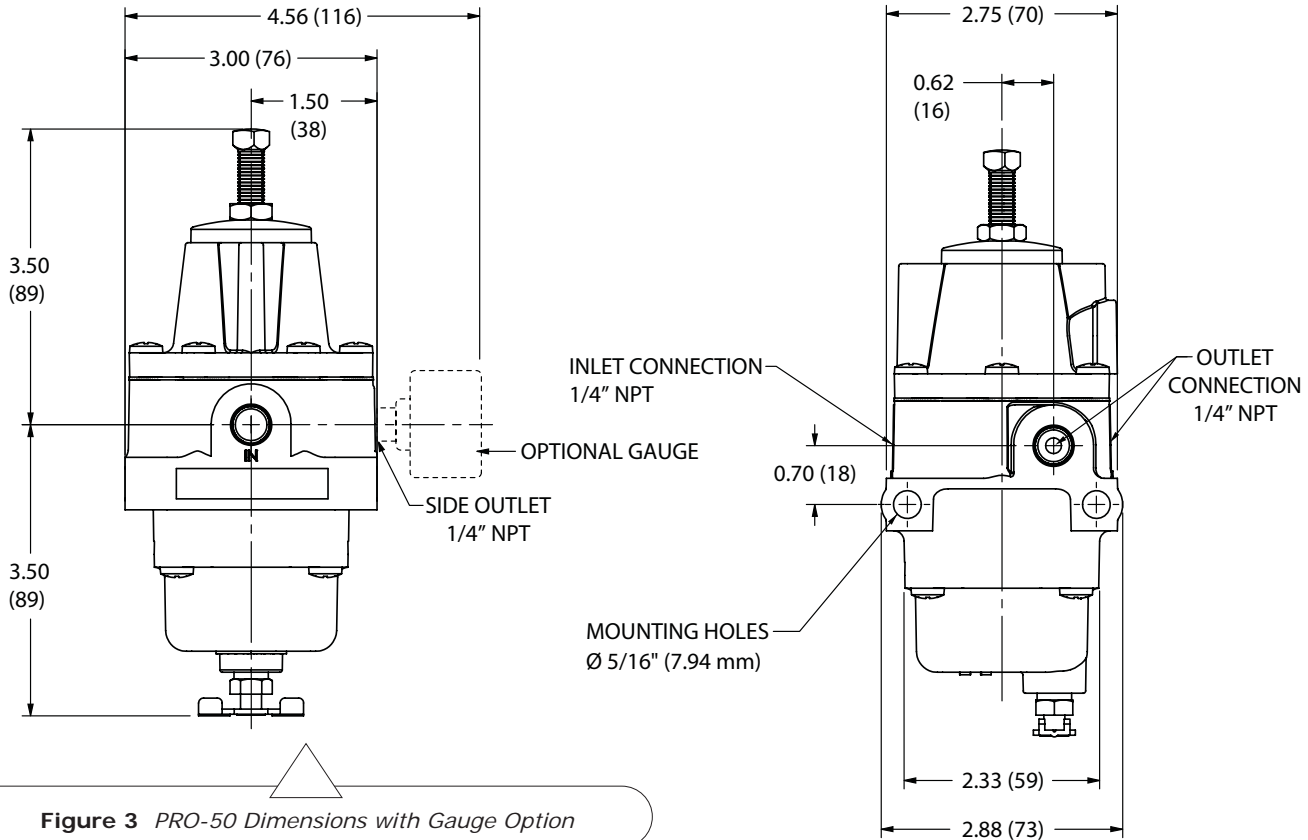
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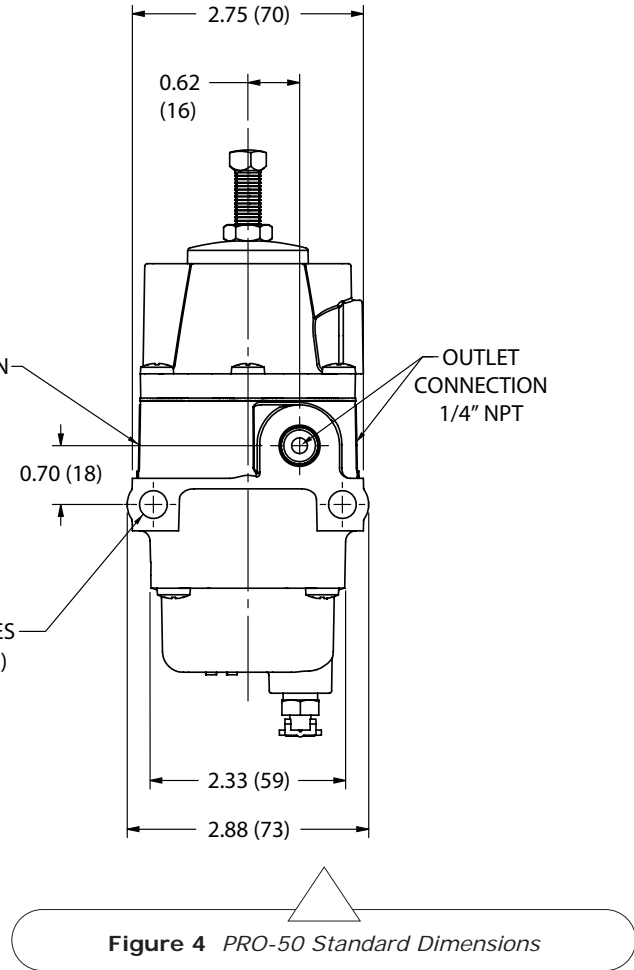
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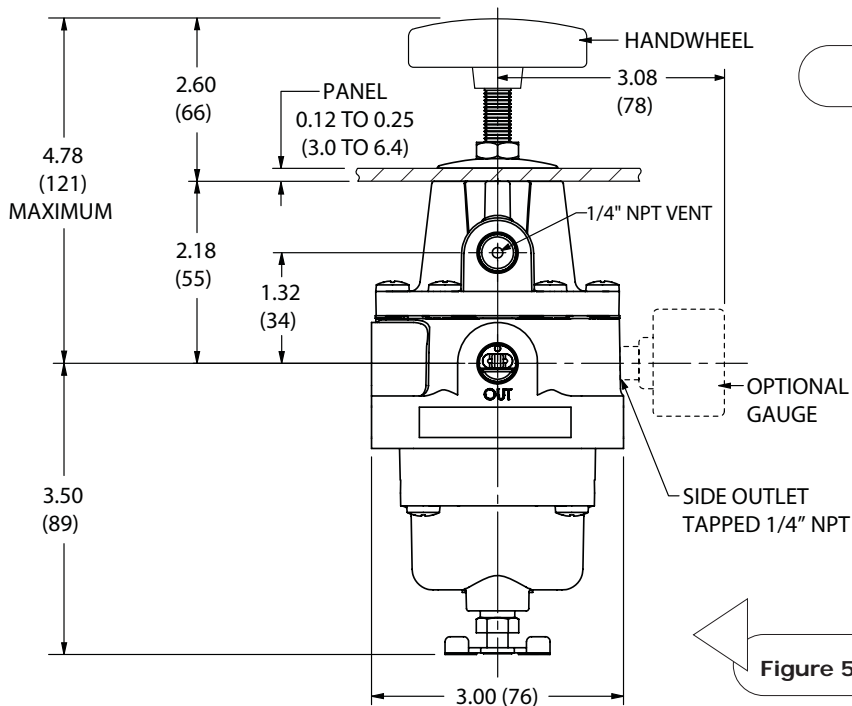
## Technical Sales Bulletin



**Figure 3** PRO-50 Dimensions with Gauge Option



**Figure 4** PRO-50 Standard Dimensions



**Figure 5** PRO-50 Dimensions for Panel Mount and Handwheel