LPR2 Ultra Low Pressure Regulator

REGULATOR USE AND STARTUP

WARNING:

Make sure that you have read and understand these directions before using, installing, or maintaining the Equilibar pressure regulator. Take steps to ensure this instruction manual reaches the operator of this regulator and stays with the regulator throughout its lifetime. Use, installation, operation, and maintenance of all pressurized products including this regulator must be performed by personnel who are properly trained and qualified through experience or specific training.

Failure to properly observe the instructions contained in this document may result in but is not limited to:

- Serious personal injury or death
- Unconstrained release of the pressurized media
- Permanent damage to the pressure regulator and/or permanent damage to connected equipment

The LPR2 is a manually adjustable pressure reducing regulator for ultra-low pressures in applications that are static or require only low flow rates. The LPR2 accepts a 5-30 psig regulated gas supply and regulates the pressure to a reduced value that matches the setting on the adjustable hand knob. The LPR2 is a non-relieving regulator. A small bleed to atmosphere orifice may be integrated for applications that do not consume downstream gas.

The LPR2 is a relieving style regulator designed for air service. and has a small gas bleed through the bonnet. It may be used for inert gases only in a well ventilated area. It is assumed that the user is technically competent to incorporate proper precautions.

The controlled pressure port is marked “OUT“. The supply pressure port is not marked. Flow is from inlet (supply pressure) to OUT (controlled pressure)

Orientation: Regulator will perform best when installed vertically (with the kob in the upright orientation)

Inspect the LPR for any damage. Consult Equilibar before proceeding if you find any damage.

Verify that the part number on the Equilibar LPR product label matches what you had requested

Call, write, or e-mail Equilibar if you have any questions, concerns, or need a new copy of these instructions. Be sure to include the full part number and serial number of the LPR you are inquiring about. (**Equilibar, 320 Rutledge Road, Fletcher, NC, 28791, USA, Phone 01-828-650-6590, www.equilibar.com, info@equilibar.com**)

Every Equilibar regulator is individually hand tested at the factory for operation and external leakage. Leak testing is typically performed at 1.5X the MAWP.

Equilibar regulators are cleaned internally and externally at the factory using aqueous based cleaners in an ultrasonic cleaner and manual wipe down with denatured alcohol.

The controlled pressure “OUT“ port is connected to the point in the system where it is desirable to maintain or control the pressure. The best pressure control will be seen if the plumbing to the LPR “OUT“ port is as short and as large as practical to minimize the amount of pressure drop in the plumbing.

Tapered pipe thread connections will require the addition of a sealant. PTFE tape may be used if it is compatible with your process and media. Take care not to let the PTFE tape extend past the first two male threads to prevent the PTFE tape from being ingested by the regulator. Tape or other debris can prevent the LPR from closing tightly and therefore not able to maintain the pressure at low flow rates. PTFE based pipe dope or an anaerobic “Loctite” product may also be used. Confirm the thread sealant used is compatible with your process, temperature, and media.

Even inert gasses can cause suffocation through oxygen displacement. Take care to ensure that adequate ventilation and oxygen levels will be maintained.

The Equilibar BPR is not a “Safety Accessory” as defined by the Pressure Equipment Directive 2014/68/EU. Be sure to install appropriate over pressure protection devices such as safety relief valves or rupture discs to protect the system and the LPR from exceeding the maximum allowable working pressures. These safety devices must meet applicable law, codes, regulations, and standards for your jurisdiction.

The LPR is designed, manufactured, and tested in accordance with sound engineering practices and the European Community Pressure Equipment Directive 2014/68/EU (the PED). Because the LPR series is used only at pressures less than 0.5 Bar gauge (above atmosphere) the PED does not apply and no specific PED Declaration of Conformity is issued for the LPR Series.

LPR2 Ultra Low Pressure Regulator

FLOW CAPACITY	SENSITIVITY
3 SLPM (6 SCFH) with 30 psig supply and 5 in WC (0.18 psi) [12.45 mbar] set point	±0.01 in WC (0.0004 psi) [0.0249 mbar]
SUPPLY PRESSURE	**7 DAY STABILITY**
5 – 30 psig [0.34 – 2.07 bar]	±0.06 in WC (0.002 psi) [0.149 mbar]
OUTPUT RANGES	**TEMPRATURE RANCE**
0.25 - 7 in WC (0.01-0.25psi) [0.6-17.4mbar] 1 - 10 in WC (0.04-0.36psi) [2.5-24.9mbar] 1 - 28 in WC (0.04-1.01psi) [2.5-69.7mbar]	-20 to 170°F (-29 to 77°C)
AIR COMPRESSION	**PORTS**
< 30 ml/min (No Bleed unit) Approximately 250 ml/min (Bleed unit)	¼" NPT inlet & outlet
WEIGHT	
Approximately 1.3 lbs (0.59 kg)	

MAINTENANCE NOTES

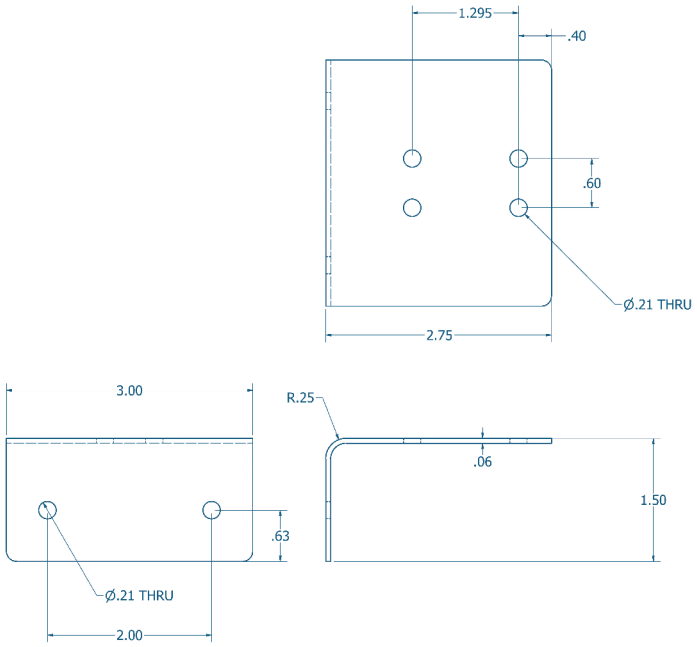
Maintain filter regulator upstream of LPR2 to assure a clean, stable input supply.
There are no user serviceable parts inside the LPR2.
Contact Equilibar for service issues: info@equilibar.com or 828-650-6590.

TROUBLESHOOTING

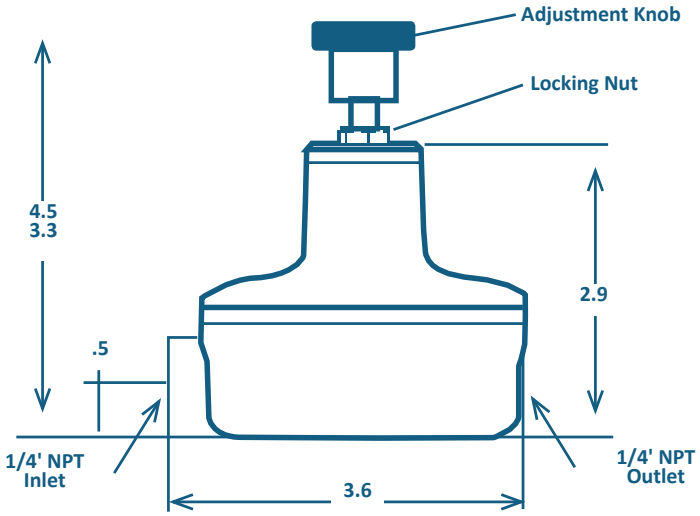
PROBLEM	POSSIBLE SOLUTIONS
Pressure too high; will not lower when knob is turned counter clockwise:	Main valve seat is likely worn or damaged. Consult factory.
Air weep through bonnet	• If unit is Bleed type, a small weep is to be expected. Consult factory. • If unit is No-Bleed type, a significant weep may be a sign of diaphragm damage
Air is coming from the vent port	• Supply pressure too high • Main valve seat damaged or contaminated

LPR2 Ultra Low Pressure Regulator

LPR2 Mounting Bracket



Dimensions Shown In Inches



ORDERING INFORMATION

EXAMPLE				
LPR2	-	B	-	7
LPR2	-		-	
1		2		3

1	**MODEL**
LPR2	Ultra Low Pressure Precision Regulator
2	**GAS CONSUMPTION**
B	Bleed
NB	No Bleed
3	**PRESSURE RANGE**
7	0.25 - 7 in WC (0.01-0.25psi) [0.62-17.44mbar]
10	1 - 10 in WC (0.04-0.36psi) [2.49-24.91mbar]
28	1 - 28 in WC (0.04-1.01psi) [2.49-69.74mbar]

SAFETY PRECAUTIONS

WARNING

Improper operation could result in serious injury to persons or damages to equipment!

Please read all of the following Safety Precautions before installing or operating any Equilibar, Inc. equipment or accessories. To confirm safety, be sure to observe 'ISO 4414: Pneumatic Fluid Power - General rules relating to systems' and other safety practices. Improper operation could result in serious injury to persons or loss of life!

1. OVERPRESSURIZATION

The LPR2 pressure reducing regulator is not a safety device and must not be relied upon to prevent dangerously high pressures. Where danger from overpressurization exists then an additional valve that is designed and marketed as a safety pressure relief valve must be used to protect the LPR2 against excess supply pressure and to protect the system should the LPR2 produce excess pressure on its outlet.

2. PRODUCT COMPATIBILITY

Equilibar, Inc. products and accessories are for use in industrial pneumatic applications with compressed air media. The compatibility of the equipment is the responsibility of the end user. Product performance and safety are the responsibility of the person who determined the compatibility of the system. Also, this person is responsible for continuously reviewing the suitability of the products specified for the system, referencing the latest catalog, installation manual, Safety Precautions and all materials related to the product.

3. EMERGENCY SHUTOFF

Equilibar, Inc. products cannot be used as an emergency shutoff. A redundant safety system should be installed in the system to provide a reliable valve closure where shutoff is required.

4. EXPLOSIVE ATMOSPHERES

The LPR2 Series should not be used where harmful, corrosive or explosive materials or gases are present. Unless specifically certified and labeled, Equilibar, Inc. products cannot be used with flammable gases or in hazardous environments.

5. COMPRESSED GAS QUALITY

Clean, dry air is not required for Equilibar, Inc. products. However, a 40 micron particulate filter is recommended to prevent solid contamination from entering the product. Only neutral gasses should be used. Normally occuring condensate from compressed air is allowed.

6. TEMPERATURE

Products should be used with a media and ambient environment inside of the specified temperature range of -20 to 170F (-29 to 77C). Consult factory for expanded temperature ranges.

7. OPERATION

Only trained and certified personnel should operate electronic and pneumatic machinery and equipment. Electronics and pneumatics are very dangerous when handled incorrectly. All industry standard safety guidelines should be observed.

8. SERVICE AND MAINTENANCE

Service and maintenance of machinery and equipment should only be handled by trained and experienced operators. Inspection should only be performed after safety has been confirmed. Ensure all supply pressure has been exhausted and residual energy (compressed gas, springs, gravity, etc.) has been released in the entire system prior to removing equipment for service or maintenance. Be sure to employ lock out / tag out procedures.

WARRANTY

Equilibar, Inc. products are warranted to the original purchaser only against defects in material or workmanship for one (1) year from the date of manufacture. The extent of Equilibar's liability under this warranty is limited to repair or replacement of the defective unit at Equilibar's option. Equilibar shall have no liability under this warranty where improper installation or filtration occurred