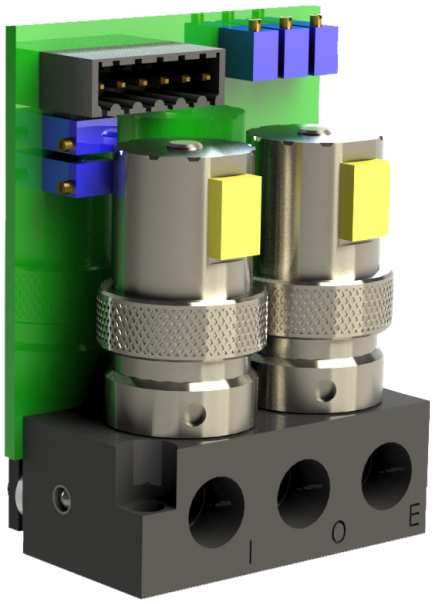
PROPORTION-AIR



Panel mount shown; manifold and DIN rail mounting available.

MM Electro-Pneumatic Pressure Regulator

The MM-Series is a low cost, closed-loop valve offering electronic control of pressure from full vacuum up to 175 PSI. A variety of analog signals are available and multiple mounting options

- Extremely durable and able to withstand industrial shop air and vibration.
- Designed to work in static (deadheaded) applications.
- Takes up less space
- Reduces plumbing
- Simplifies design
- Easy tuning of system stability

Specifications

Electrical

Supply voltage ..... 15-24 VDC
Supply current ..... 250 mA Max
Command signal ..... 0-10 VDC | 4-20 mA
Command signal impedance
VDC ..... 4.75 Ω
Current ..... 100 Ω
Monitor signal ..... 0-10 VDC @ 10 mA max

Mechanical

Pressure ranges† ..... Vacuum-175 psig
Output pressure ..... 0-100% of range
Flow rate ..... 1.2 SCFM @ 100 psig output
Min closed end volume ..... 1 in^3
Port size ..... 1/8" NPT
Filtration recommended ..... 40 Micron (included)
Accuracy ..... ±0.2 F.S.
Linearity/Hysteresis ..... ±0.15% F.S. BSFL
Repeatability ..... ±0.02% F.S.

Physical

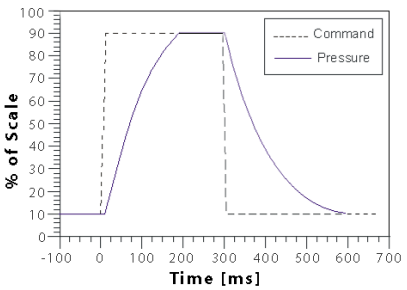
Operating temperature ..... 32-158° F (0-70° C)
Weight
Brass ..... 0.7 lbs (0.32 Kg)
Aluminum ..... 0.45 lbs (0.21 Kg)
Overall dimensions ..... 2.1" x 2.8" x 1.06"

Wetted Parts ‡

Elastomers ..... Fluorocarbon
Manifold ..... Brass or anodized aluminum
Solenoid valves ..... Nickel-plated brass
Pressure transducer ..... Silicon, aluminum

†Pressure ranges are customer-specified.
‡Others available.

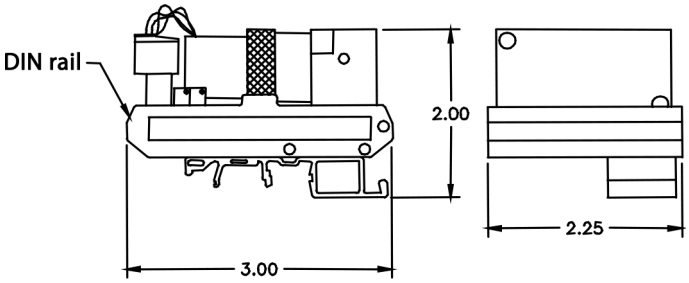
RESPONSE TO STEP INPUT



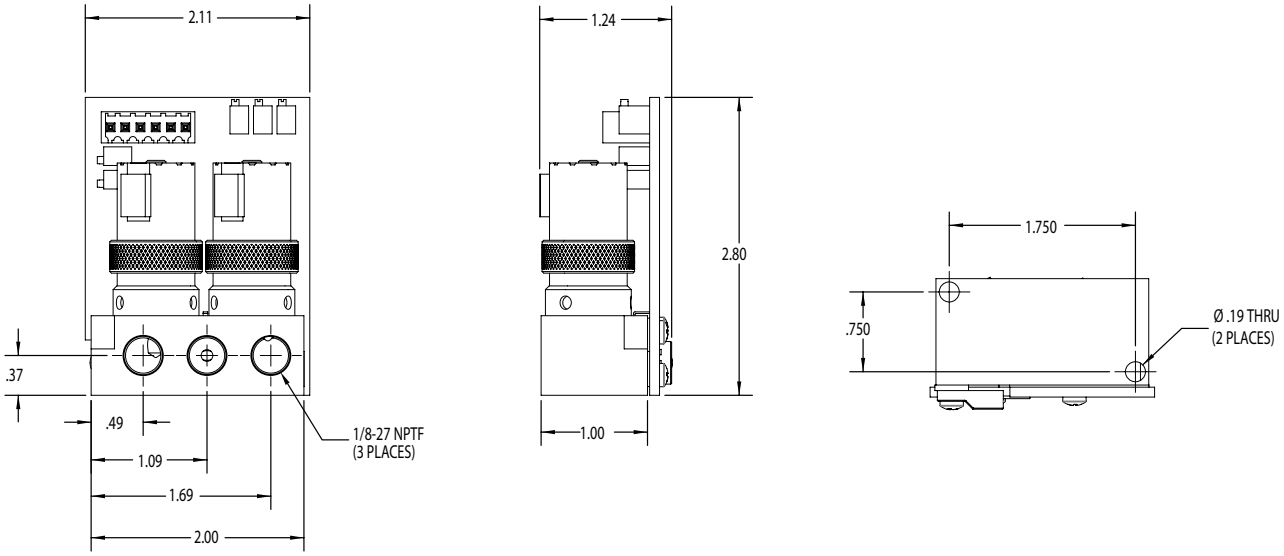
Times for MM to fill/exhaust 2 cu.in. chamber. Step command signal is superimposed over pressure trace. Time is determined by the difference between command signal and pressure achieved.

Dimensions

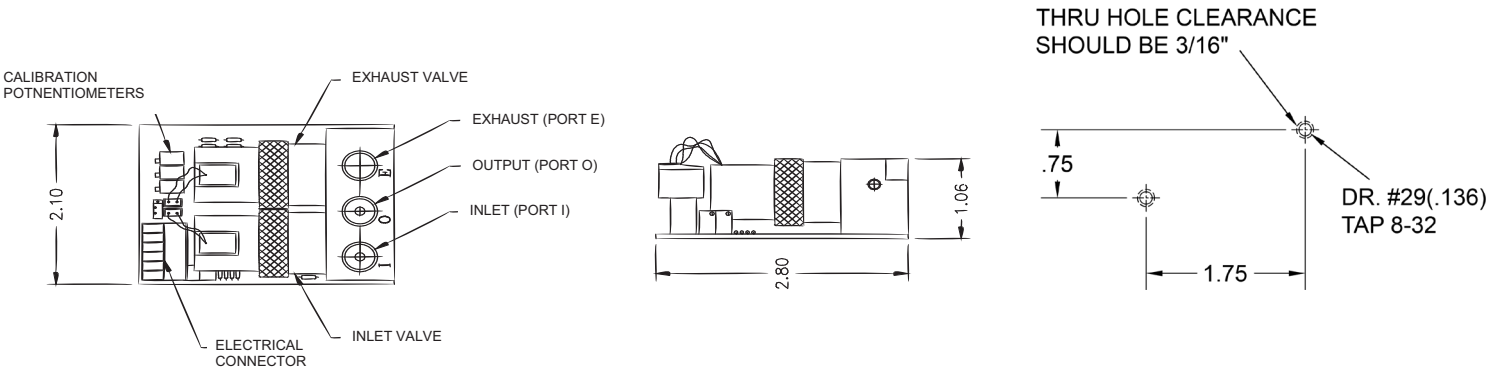
DIN Rail Mount



Manifold Mount



Panel Mount



Configuration

MM

ACCURACY	±0.2% F.S.	PRESSURE	Full Vac to 175 PSIG *(12 Bar)*
PORT SIZE	1/8"	MAX FLOW	1.2 SCFM *(34 SLPM)*

Example Part Number	MM	2	P	B	N	E	E	Z		P	7	BR	G	3D	TF
Section Reference ->		1	2	3	4	5	6	7	8	9	10	11	12	OPTIONS	

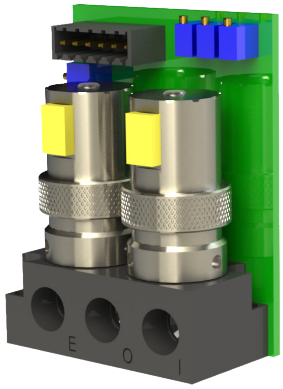
1	Type
1	Single Loop
2	Dual Loop

2	Mounting Type
D	DIN Rail (Ports on Face)
M	Manifold (Ports on Bottom)
P	Panel (Ports on Face)

3	Manifold Material
A	Anodized Aluminum
B	Brass (typical)

4	Thread Type
N	NPT
P	BSPP
H	Manifold Mount (no threads)

5	Command Signal Range	
E	0 to 10 VDC	
I	4 to 20 mADC	
K	0 to 5 VDC	
V	1 to 5 VDC *(Requires* **V** *for Monitor Signal #6)*	



Please consult the factory for manifold options and pricing

6	Monitor Signal Range
X	No Monitor
E	0 to 10 VDC
K	0 to 5 VDC *(Requires* **E, I** *or* **K** *for Command Signal Range #5)*
V	1 to 5 VDC *(Requires* **V** *for Command Signal Range #5)*
C	4 to 20 mADC *(Sinking)*
S	4 to 20 mADC *(Sourcing)*

7	Zero Offset
N	0% Pressure is Below Zero
P	0% Pressure is Above Zero
Z	0% Pressure is Zero *(Typical)*

8	Zero Offset Pressure
Typical is 0* - If greater than 30% of full scale pressure *(#9)*, please consult factory.	
*If **Z** for Zero Offset, Please Leave this Section (#8) Blank	

9	Full Scale Pressure Type
N	100% Pressure is Below Zero
P	100% Pressure is Above Zero
Z	100% Pressure is Zero

10	Full Scale Pressure
Must be between less than or equal to 175 psig*	
*Adder if Full Scale Pressure is <13.5" H2O	

11	Pressure Unit		
PS	PSI	Inches Hg	IH
MB	Millibars	Inches H_2O	IW
BR	Bar	Millimeters H_2O	MW
KP	Kilo-pascal	Kilograms/cm^2	KG
MP	Mega-pascal	Torr *(Requires A for Unit of Measure #12)*	TR
MH	Millimeters Hg	Centimeters H_2O	CW
PA	Pascal		

12	Pressure Unit of Measure
A	Absolute Pressure
G	Gauge Pressure
D	Differential Pressure (Consult Factory)

Options	
DR	Install DIN Rail Mounting Kit
O2*	Oxygen Cleaned
O3	Oxygen Cleaned No O2
P1	12-VDC Power

*O2 cleaning only available on brass manifold.
Many other options are available. Please consult factory for more information.

Recommended Accessories	
H14612	Extra Power Connector *(Included with MM)*
DRKMT-01	DIN Rail Mounting Kit
PMK-MM	Panel Mounting Kit

SAFETY PRECAUTIONS

Please read the following safety information before installing or operating any Proportion-Air, Inc. equipment or accessories. To confirm safety, observe 'ISO 4414: Pneumatic Fluid Power - General rules relating to systems' and other safety practices.

WARNING

Improper operation could result in serious injury or loss of life!

1. **PRODUCT COMPATIBILITY**
Proportion-Air, 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.

2. EMERGENCY SHUTOFF
Proportion, Inc. products cannot be used as an emergency shutoff. A redundant safety system should be installed in the system to prevent serious injury or loss of life.

3. EXPLOSIVE ATMOSPHERES
Products and equipment should not be used where harmful, corrosive or explosive materials or gases are present. Unless certified, Proportion-Air, Inc. products cannot be used with flammable gases or in hazardous environments.

4. AIR QUALITY
Clean, dry air is not required for Proportion-Air, Inc. products. However, a 40 micron particulate filter is recommended to prevent solid contamination from entering the product.

5. TEMPERATURE
Products should be used with a media and ambient environment inside of the specified temperature range of 32°F to 158°F. Consult factory for expanded temperature ranges.

6. 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.

7. 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.

CAUTION

Improper operation could result in serious injury to people or damage to equipment!

1. PNEUMATIC CONNECTION
All pipes, pneumatic hose and tubing should be free of all contamination, debris and chips prior to installation. Flush pipes with compressed air to remove any loose particles.

2. THREAD SEALANT
To prevent product contamination, thread tape is not recommended. Instead, a non-migrating thread sealant is recommended for installation. Apply sealant a couple threads from the end of the pipe thread to prevent contamination.

3. ELECTRICAL CONNECTION
To prevent electronic damage, all electrical specifications should be reviewed and all electrical connections should be verified prior to operation.

EXEMPTION FROM LIABILITY

1. Proportion-Air, Inc. is exempted from any damages resulting from any operations not contained within the catalogs and/or instruction manuals and operations outside the range of its product specifications.

2. Proportion-Air, Inc. is exempted from any damage or loss whatsoever caused by malfunctions of its products when combined with other devices or software.

3. Proportion-Air, Inc. and its employees shall be exempted from any damage or loss resulting from earthquakes, fire, third person actions, accidents, intentional or unintentional operator error, product misapplication or irregular operating conditions.

4. Proportion-Air, Inc. and its employees shall be exempted from any damage or loss, either direct or indirect, including consequential damage or loss, claims, proceedings, demands, costs, expenses, judgments, awards, loss of profits or loss of chance and any other liability whatsoever including legal expenses and costs, which may be suffered or incurred, whether in tort (including negligence), contract, breach of statutory duty, equity or otherwise.

WARRANTY

Proportion-Air, Inc. products are warranted to the original purchaser only against defects in material or workmanship for eighteen (18) months from the date of manufacture. The extent of Proportion-Air's liability under this warranty is limited to repair or replacement of the defective unit at Proportion-Air's option. Proportion-Air shall have no liability under this warranty where improper installation or filtration occurred.

PROPORTION-AIR

ProportionAir.com
8250 N 600 W
P.O. Box 218
McCordsville, IN 46055
info@proportionair.com

Handcrafted in the USA
ISO 9001-2015 Certified