Custom Systems
Model 83
Vacuum and/or Compressor

11/2024

Description

The Mensor Model 83 vacuum and compressor is a piece of equipment that compliments a pressure controller and can fit on a bench or in a rack-mounted configuration.

Functionality

The Model 83 is most commonly used on a desktop configured with a vacuum and pressure pump. It's easy to use and compact enough to be moved. The unit can be controlled automatically through its rear I/O connector. Different configurations are available to best suit its use case scenario.

Unit setup

Ensure the power cable is connected to the electrical inlet on the rear of the unit. Attach the required pressure/vacuum connections onto the applicable, labeled ports on the rear of the unit. Flip the electrical inlet switch to the on positions. Turn the HOA to the "H" to power up the pump or "A" to allow automatic control. There is one HOA switch per pump. Refer to the theory of operation section for information on how the HOA switch operate.

Maintenance

Periodically:

- Ensure that there is not an accumulation of dust or debris.
- Ensure that the cooling fans spin without binding or increased strain.

Each new unit has a 1-year warranty from the date of delivery.



Model 83 - Vacuum and Compressor

Configurations

Single Compressor	Model 83- C
Single Vacuum	Model 83- V
Dual Compressor	Model 83 - CC
Dual Compressor	Model 83- 2C (Single channel, parallel pumps, higher volume flow rate)
Dual Vacuum	Model 83- V V (Two vacuum channels)
Dual Vacuum	Model 83- 2V (Single channel, parallel pumps, higher volume flow rate)
Vacuum and Compressor	Model 83 - VC

1) Append –D for desktop model and –R for rack-mountable model

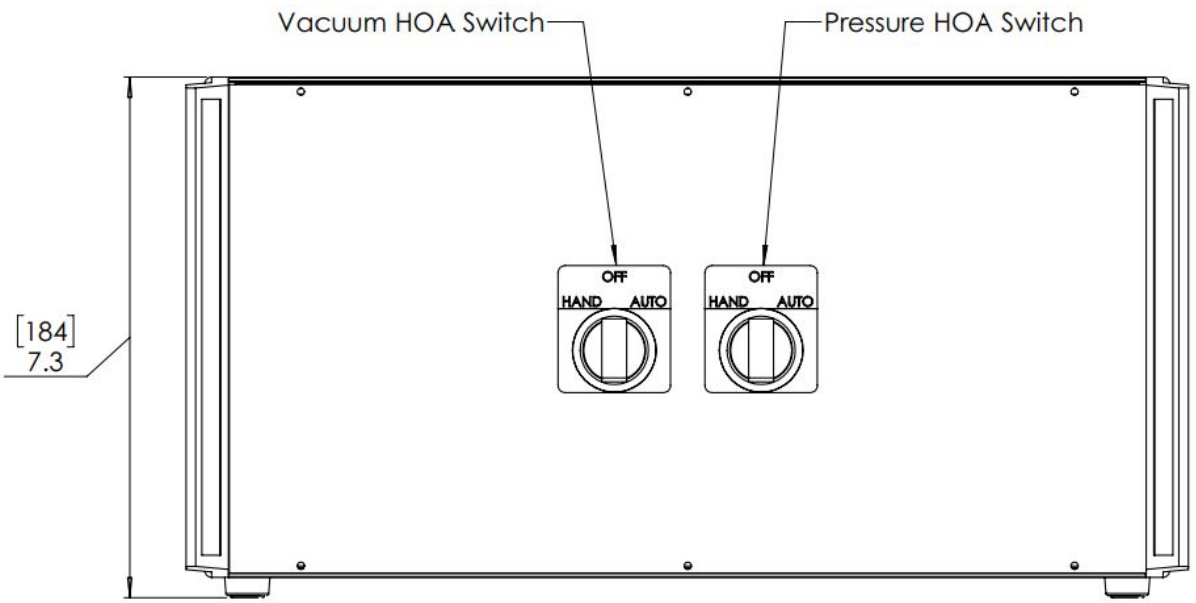
WIKA
Smart in sensing

Specifications
Model 83

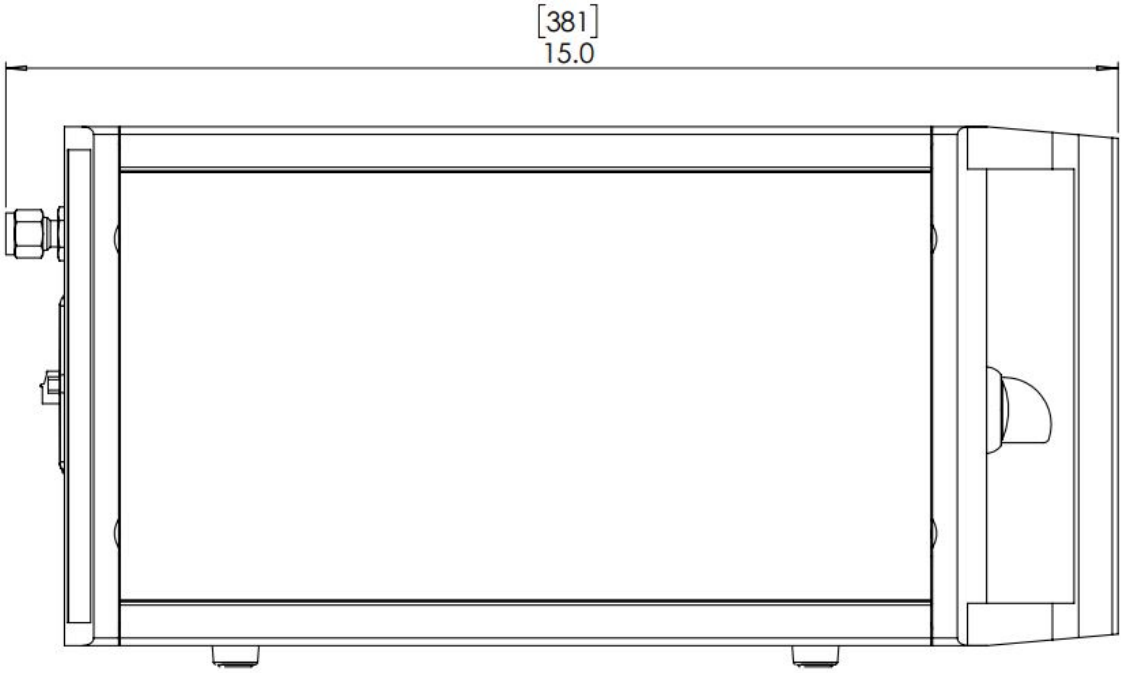
Basic Instruments - Model 83	
Power	85-264 VAC, 47-63 Hz
Pressure Pump (Per Pump)	
Max Intermittent Duty Pressure	2.5 Bar
Max Continuous Duty Pressure	0.5 Bar
Max Flow	24.0 l/min
Current Consumption	1.9 Amps
Vacuum Pump (Per Pump)	
Max Flow	7.5 l/min
Current Consumption	1.9 Amps
Fittings	1/4” Stainless Tube
Desktop Dimensions	L ~15.0" [381mm] x W ~14.0" [101.6mm] x H ~7.3"[185.4mm]
Rack-Mount Dimensions	L ~15.0" [381mm] x W ~19.0" [482.6mm] x H ~7.3"[185.4mm]
Weight	~15lbs (7kg) to ~10lbs (5kg) configuration dependent
Noise Level	Approximately 55dB a weighted at 6ft. Approximately 64dB a weighted a 1ft.

*If pressure exceeds ~3.2 bar the pressure pump will turn off and vent until ~2.5 bar. This is intended to reduce undue strain on the pressure pump.

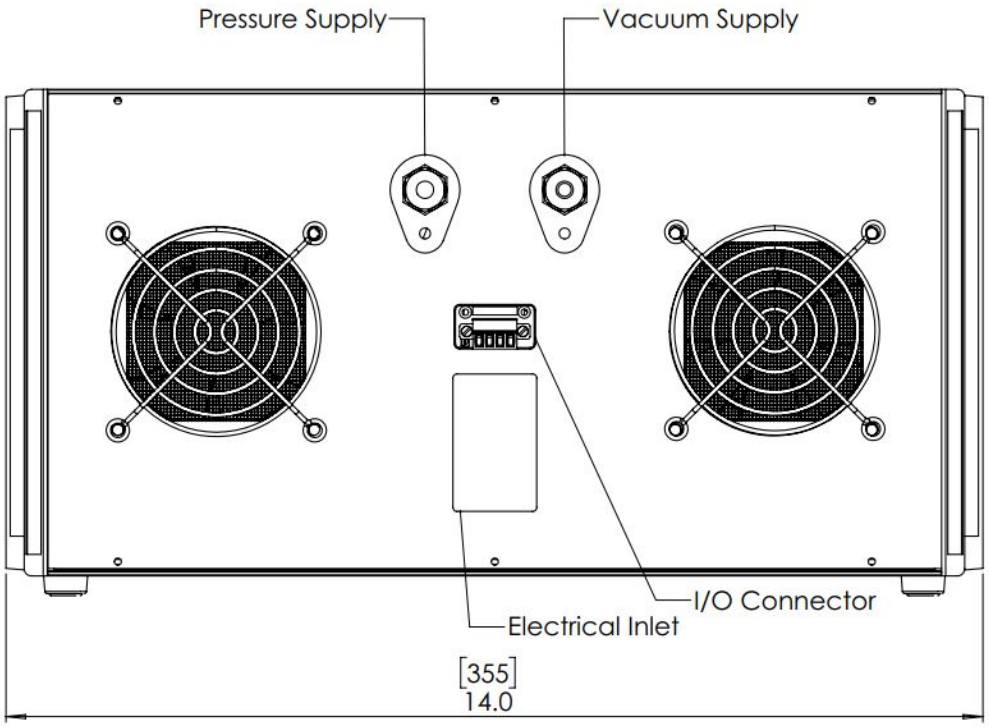
Front Panel Features: Inches [Millimeters]



Side: Inches [Millimeters]



Rear Panel Features: Inches [Millimeters]



Theory of Operation:

Each pressure pump has a pressure switch and a N.O. vent solenoid. The pressure switch is intended to reduce the strain on the pump by turning off the pump if the pressure becomes excessive and turning the pump back on when it falls below its intermittent max pressure. When the pressure pump is turned off the N.O. solenoid will vent the pressure.

Each vacuum pump has a N.O. vent solenoid. When the vacuum pump is off this solenoid will pull in atmosphere. Each pump has its own HOA switch. These switches act independently of each other.

Hand (H):

When the HOA switch is flipped to the Hand(H) state the pump will turn on. In the case of a pressure pump, it will only turn on if the back pressure is not excessive.

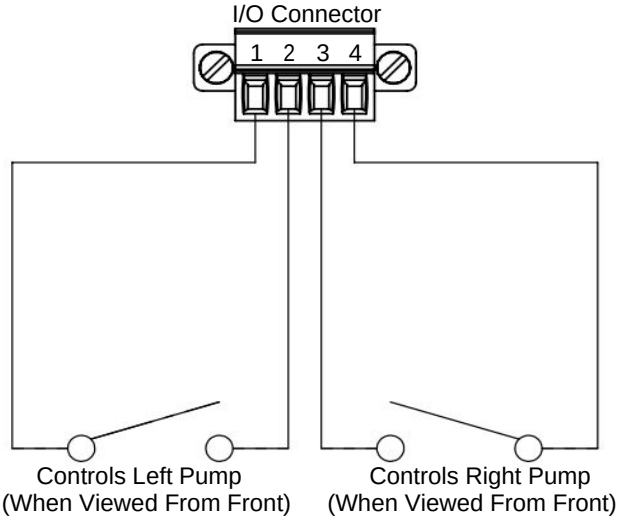
Off (O):

When the HOA switch is flipped to the Off(O) state the pump will turn off. A vacuum pump will have an N.O. solenoid that will pull in atmosphere. A pressure pump will have a N.O. solenoid that will vent its pressure.

Automatic(A):

When the HOA switch is flipped to the Automatic(A) state the pump can be controlled by I/O input. Depending on the I/O input, the pump will either turn on or off. In the case of a pressure pump, it will only turn on if the back pressure is not excessive. When not in the Automatic(A) state all I/O input will be ignored.

The 4-pin I/O Connector on the rear of the unit is intended to be used as a passive interrupt system. When there is a short between terminals 1 and 2 the HOA switch on the left side (when viewed from the front) of the unit will activate. A short between terminals 3 and 4 would cause the HOA switch on the right side (when viewed from the front) to activate. Note that any switch or relay used would need to handle 24VDC.



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