ADVANCED MICRO INSTRUMENTS
An ENPRO Company

AC Fixed Pump Module Operator Manual

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Preface

Congratulations for purchasing the AMI AC Powered fixed pump module. This unit is designed to be used with an AMI analyzer such as the models 2010BX, 210BX, Watchdog, 3010BX and 4010LX to add the capability of drawing a sample from a low pressure or vacuum source.

Please read and understand this manual fully before attempting to use the instrument.

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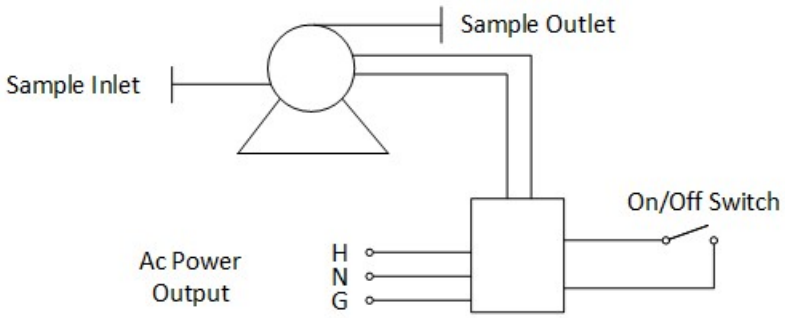
Introduction

The fixed pump module is an auxiliary unit that is designed to be used with a standard AMI trace or percent oxygen analyzers, an AMI trace hydrogen sulfide analyzer, or AMI trace moisture analyzer.

The design of the fixed pump minimizes diffusion of atmospheric oxygen into the sample to minimize contamination and reading errors for oxygen analyzers. Less than 1ppm of oxygen can be expected to be added to the sample by the pump. The exact amount depends on sample flow rate and temperature.



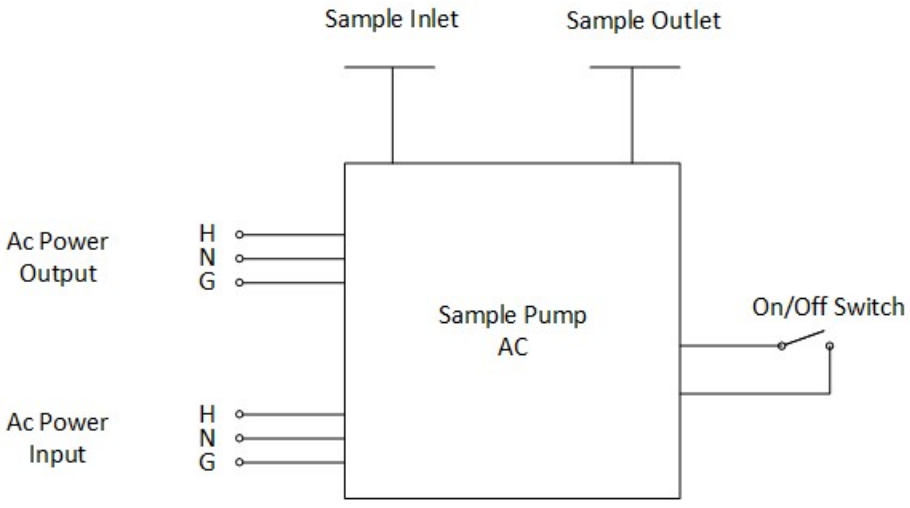


Figure 1. System Schematic

System Components

The fixed pump module contains three basic components.

Flow block

The flow block is a machined block of anodized aluminum that supports the input and output ports (normally, ¼" Swagelok fittings) connected to the pump.

Pump

The pump is a long-life design that uses a brushless DC motor. It is close-coupled to the flow block using two very short lengths of low-permeability, thick-walled Tygon® tubing.

It is capable of producing a maximum flow rate of 4 SCFH (2 SLPM) while drawing from ambient pressure. Max pressure is 18 psi, refer to the Typical Pump Performance Curve for further pump performance information. performance.

AC power supply

The power supply is designed to operate off a voltage input of 100 to 240VAC (110VDC @ 90mA)

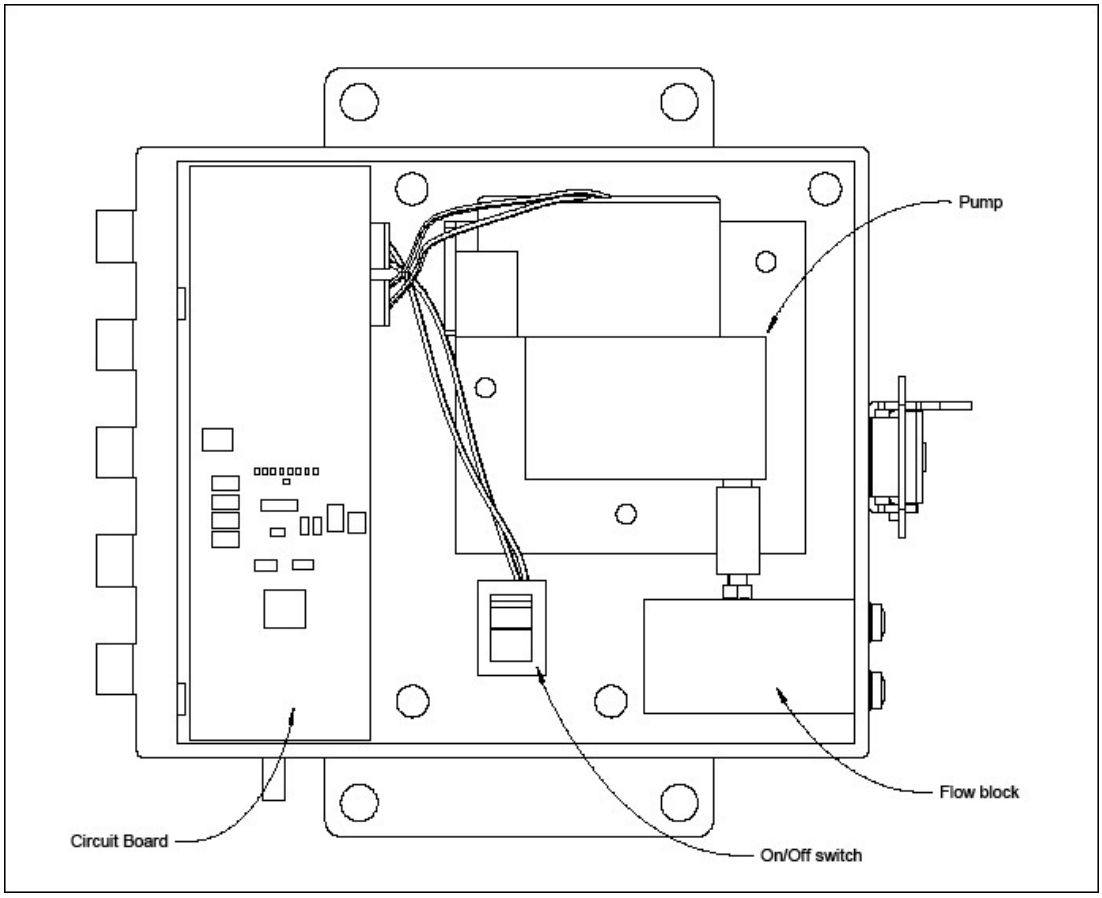


Figure 3: Part Identification Diagram (X-ray view)

Installation and Operation

Receiving the Pump module

When you receive the instrument, check the package for evidence of damage and if any is found, contact the shipper.

Installation

Shown below is the mounting dimensions for installation of the fixed pump.

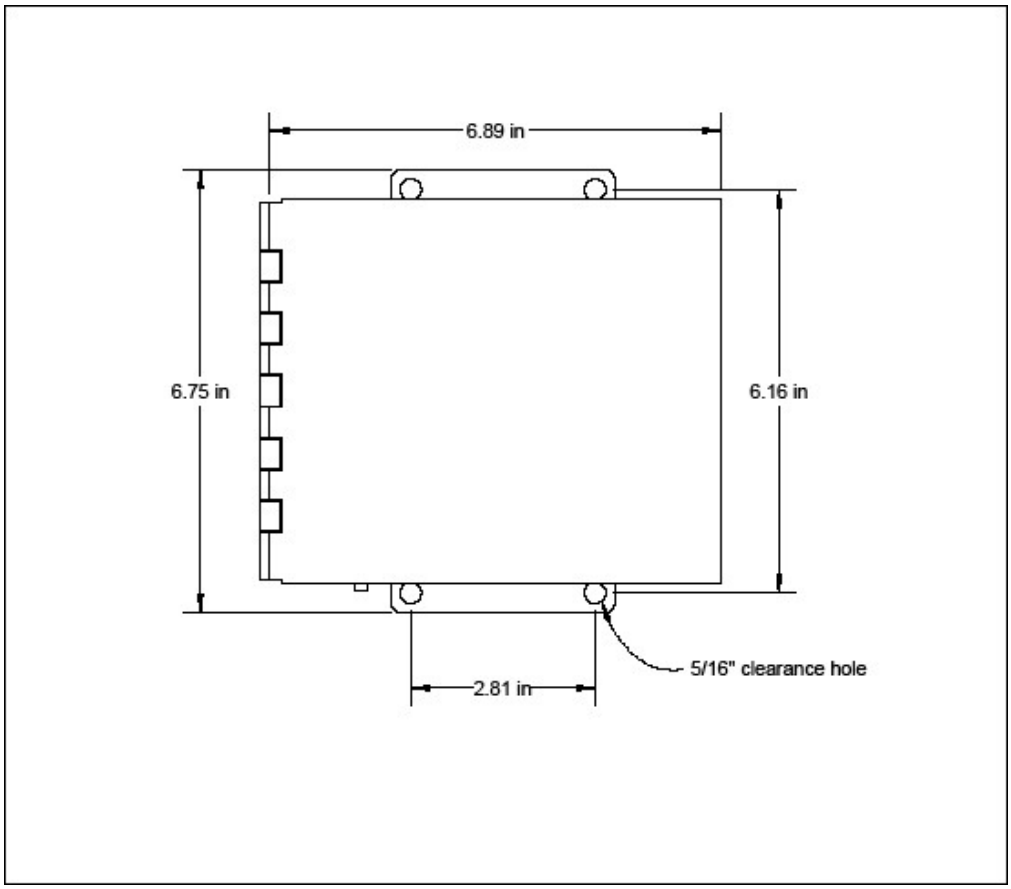


Figure 3: Mounting Hole Dimensions

Mounting Location

This unit is designed for use in general industrial applications. It is not designed for installation in hazardous locations.

The unit is not intended to be mounted outdoors. The enclosure is vented for safety reasons. If it is mounted outdoors, provide some means of preventing rain from getting into the vent on the left side of the box.

The pump is not designed for freezing temperatures.

Connecting Sample In and Out

Run ¼" stainless steel line to the inlet of the module and a short length of ¼" line from the outlet of the module to the inlet of the analyzer. When making connections, make sure the lines are free of burrs and the tubing is smooth and clean. Push the tube all the way into the fitting and tighten down the nut as far as you can by hand. Then tighten it with 1 1/8 turns to make a good compression seal.

Be sure to pressurize the system and leak check all connections. Please see Calibration and Sample Fitting options section for further information.

Note: *If your installation has a potential to dead head the pump, we suggest you install a check valve between the inlet and outlet ports. This will prevent damage to the pump diaphragm. (See Next page)*

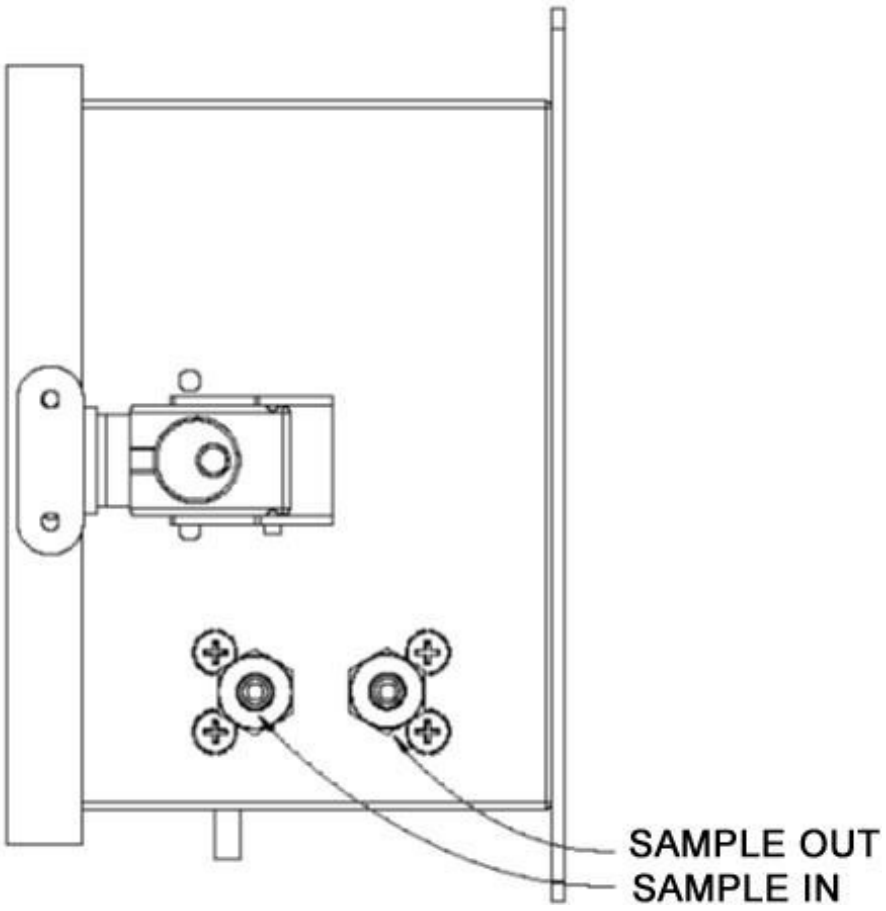


Figure 4: Plumbing Connection Illustration

Protective Check Valve

A Check valve is to be used If you want to protect against potential "dead-heading" of the pump during operation or calibration of your analyzer. If the sample becomes blocked /dead-headed, then the gas will flow from the Sample Out through the check valve then into the Sample In. This will protect the pump until the dead-head is resolved.

Number	AMI P/N	Description
1	1FIT41	Fitting, Tee, 1/4T x 1/4Tx 1/4T, SS.
2	1GCV04	Check Valve, 10 psi Cracking Pressure, SS.

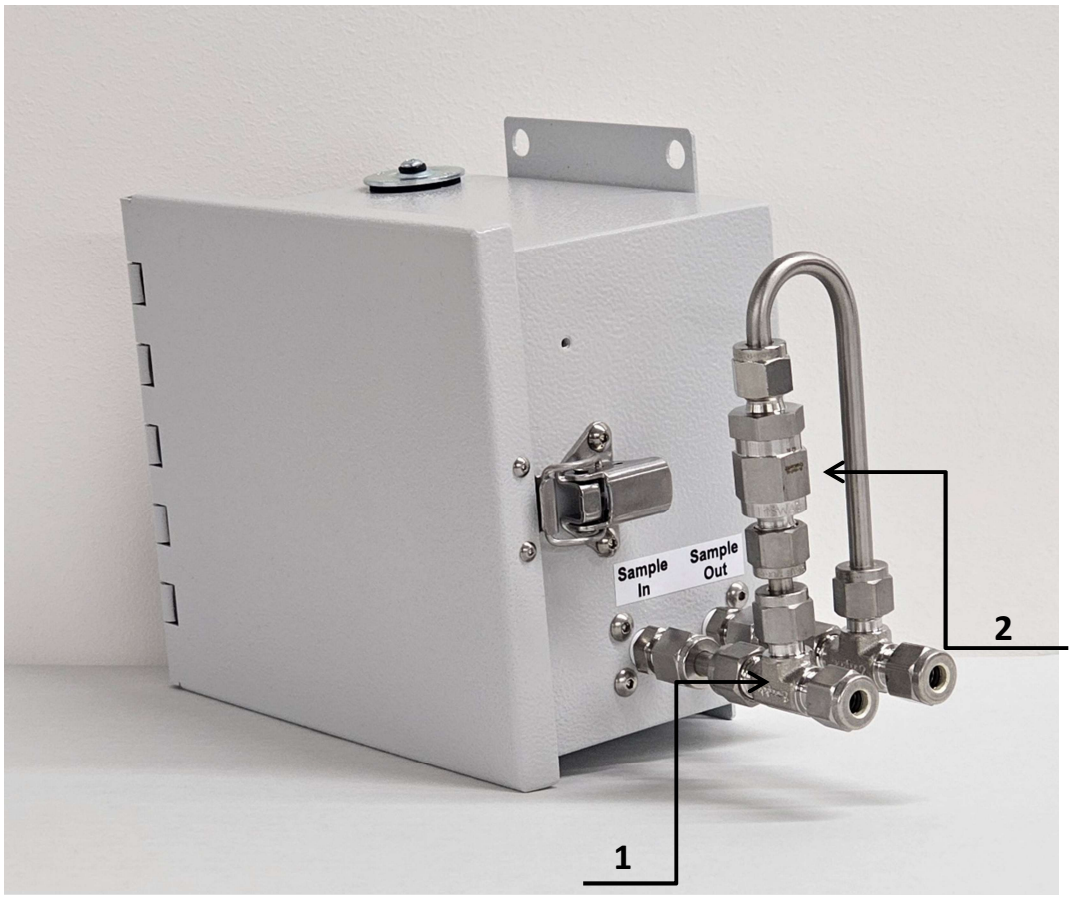


Figure 5: Calibration Gas Fittings

Electrical Connections

The unit is designed for installation in a general purpose. It is essential that the module's earth ground is connected to a high-quality earth ground.

The unit is designed to operate off 100-240VAC. Connect the supply power wires to the AC Input terminals as shown below. The AC Output terminals are connected to the AC Input terminals and may be used to power an AMI analyzer if required.

Warning: Do not connect the AC supply power to the AC output terminals.

A conduit can be connected to either of the two conduit holes in the top or bottom of the box. The ground stud on the main panel MUST be made to a good earth, with a resistance to ground of less than 1 Ohm.

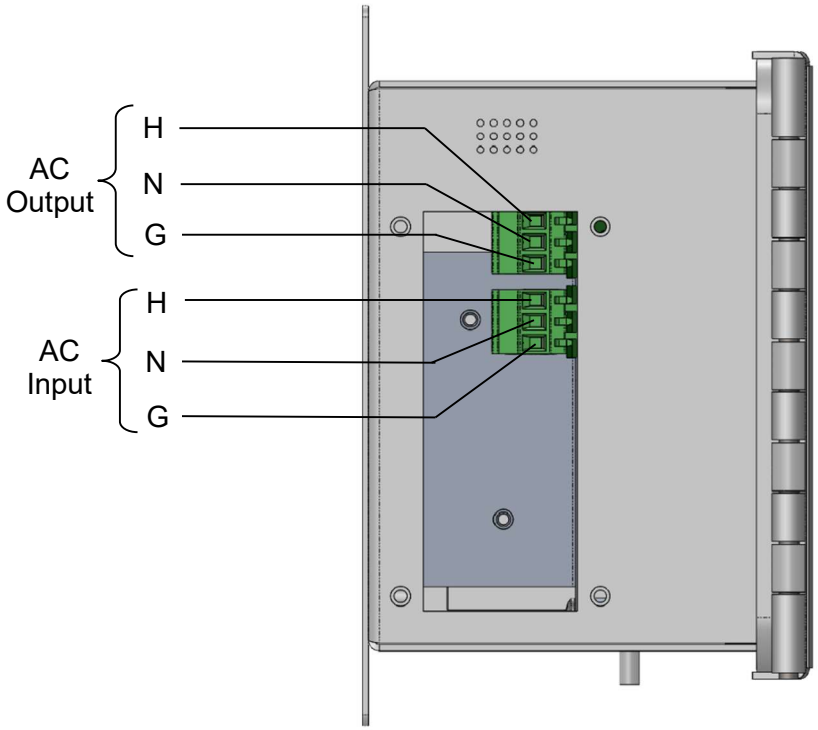


Figure 6: Electrical connections

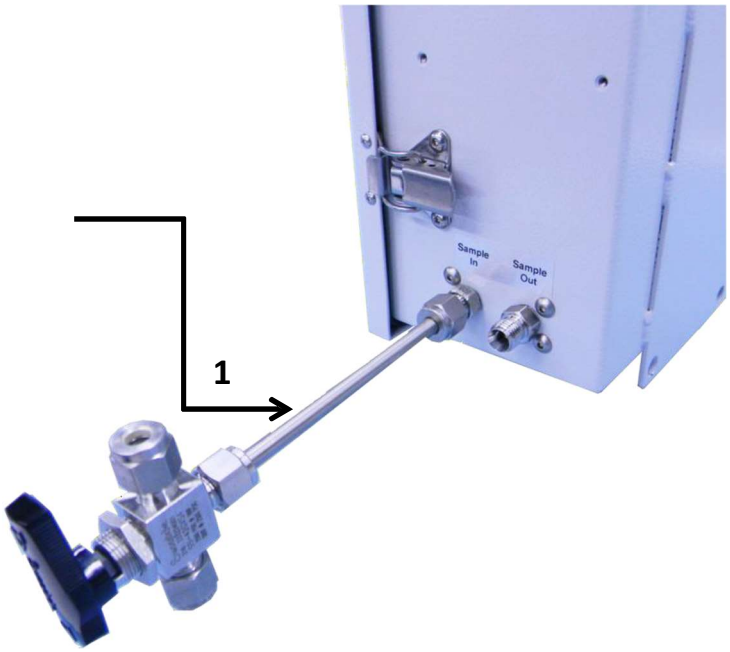
Calibration Option For Connection to the Sample Inlet

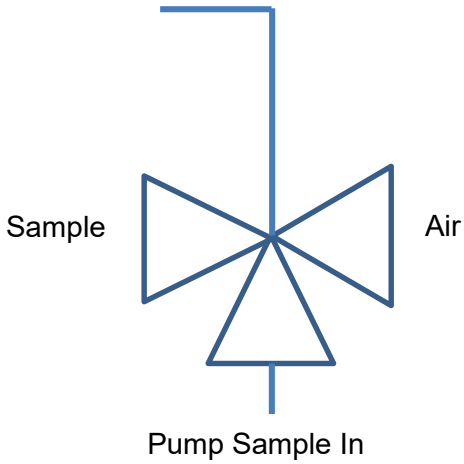
The following discusses a configuration to connect your calibration gas and sample gas to the sample pump.

Two way Valve for Air Calibration

The two way valve can be used if you use ambient air to calibrate your analyzer. The valve allows you to switch between ambient air and sample system gas.

Number	AMI P/N	Description
1	1FCV03	Valve, 3 way, use for customer calibration purposes





Schematic of the Three Way Valve

Figure 7: Air Calibration Fittings

Operating Pressure

Typical pump performance curve is shown in the figure below.

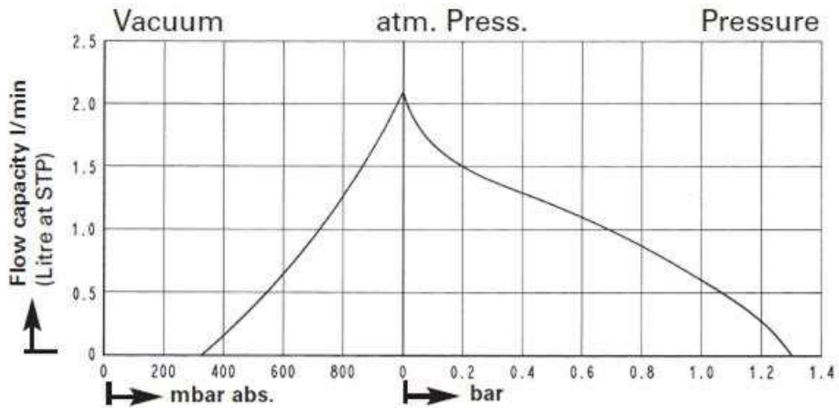


Figure 8: Typical Pump Performance Curve

Warranty Information

Any failure of material or workmanship will be repaired free of charge for a period of two years from the original purchase (shipping date) of the instrument. AMI will also pay for one-way shipment (back to the user).

Any indication of abuse or tampering will void the warranty.

Hazardous Location

This product is designed for general purpose installations only. It is not certified for use in a hazardous location. The customer is responsible for insuring that the product is appropriate for the location where it is installed.