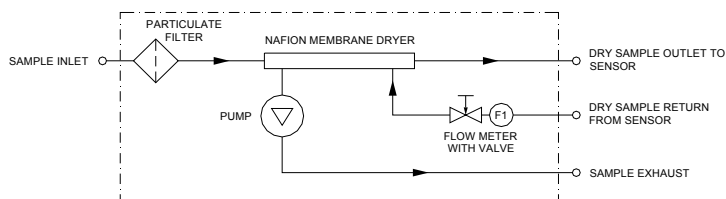


PRINCIPLE OF OPERATION

The ACES system incorporates a Perma Pure Nafion® membrane dryer, disposable 0.1 micron pre-filter and sample pump to supply a clean sample to an electrochemical sensor. The dryer is sized to supply a 20-80% RH sample from ambient air at a flowrate up to 2 L/min.

After the ACES provides clean sample to the analyzer, it flows back to the conditioning system where it is expanded by a vacuum pump and used as purge air for the dryer (refer to flow schematic below).



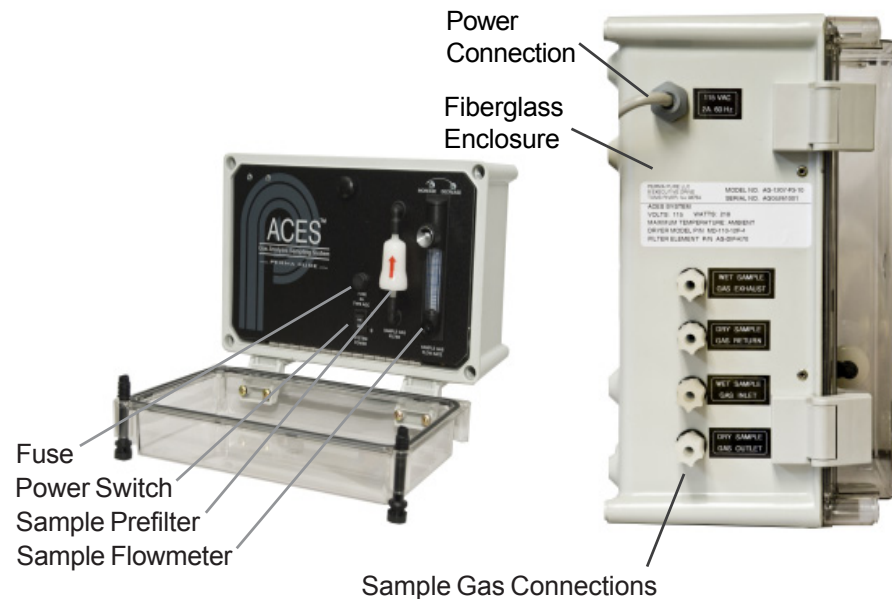
SPECIFICATIONS

Description	Specification
Dimensions	12"W x 7"H x 6"D
Electrical Requirement	110VAC/2A or 220 VAC/1A
Sample Flow	0.1 - 2.0 L/min
Disposable Filter	95% of 0.1 micron
Inlet Humidity Range	0-99%RH
Outlet Humidity	0-80%RH
Piping Connection	1/4" O.D. tube, polypropylene compression fitting
Filter Model	AG-DIF-K70
Dryer Model	MD-110-12F-4

INSTALLATION

Mount system close as possible to probe and analyzer to reduce response time and flow restriction. Enclosure is NEMA 4X rated. Since unit is not heated, dewpoint of sample entering system can be no higher than the ambient temperature.

1. Mount system to wall using the supplied mounting feet. the flow meter must be in the vertical orientation for proper operation.
2. Connect the fitting labeled "Wet Sample Inlet" to the tube from sample point.
3. Connect the fitting labeled "Dry Sample Outlet" to the tube from the analyzer inlet.
4. Connect the fitting labeled "Dry Sample Return" to the tube from the analyzer exhaust.
5. The fitting labeled "Sample Exhaust" can be connected to a vent line if the sample gas is hazardous,corrosive,toxic, etc.This is not required for proper operation.



OPERATION

1. Turn power on. Pump will start and sample gas will begin to flow.
2. Adjust valve on top of flowmeter to set desired sample flow rate. Optimal operating range is 0.5 to 1.5 liters per minute. Typically, a lower flow rate of sample gas will be dried to a lower dew point than a high sample gas flow rate. Refer to MD dryer performance chart.

MAINTENANCE

Filter Replacement:

To determine if filter needs to be replaced, monitor pressure drop and flow output of pump. If output begins to drop, it indicates clogged filter element.

1. Take notice to orientation of filter for replacement. Flow direction is top to bottom.
2. Pull the lock ring on black elbow fitting away from filter to release internal gripper. A small adjustable crescent wrench is helpful. Adjust it around the filter tube stub and slide it down to press the lock ring and then pull the filter out.
4. Replace with new filter (part number: AG-DIF-K70).

Pump:

The pump is warranted against failure for 10,000 hours of continuous operation from Hargraves (model BTC™). If pump fails, it will be repaired or replaced at manufacturers discretion free of charge. The pump is not serviceable after warranty period and must be replaced.

ACES™ Ambient Air Conditioning

User Manual



Nafion® is a registered trademark of DuPont
ACES™ is a trademark of Perma Pure LLC.

Bulletin # 215



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