OAM II

OUTDOOR AIRFLOW MEASUREMENT SYSTEM

Accurate, reliable outdoor airflow measurement that requires no straight run and is unaffected by windborne moisture and debris.

DESCRIPTION

The OAM II airflow measuring system provides accurate flow measurement in challenging outdoor air applications, as well as other airflow applications with limited straight ducts. The system consists of a dedicated multifunction transmitter with precision ultra-low differential pressure transducers and our proprietary uni-sensor airflow sensor.

Four analog outputs and native BACnet® or MODBUS® are included standard. Displayed data includes flow, temperature, velocity, dP, absolute pressure and operating status. This data is also provided to the network.

APPLICATIONS

The OAM II System is factory configurable for a variety of common applications, including:

Single Channel, Single System Airflow Measurement - The single channel configuration provides outdoor airflow measurement from 150 to 2400 FPM - Excellent solution for accurate flow measurement from minimum outdoor air through economizer operation.

Min / Economizer (Split) Airflow Measurement - The Min/Econ configuration provides combined airflow measurement for separate minimum and economizer inlets – Effective tool for measuring this commonly used inlet configuration.

Dual Channel, Dual System Airflow Measurement - Dual channel operation provides two separate airflow measurements in one transmitter - Great for built up systems that provide outdoor air to multiple locations.

FEATURES

Extended Flow Range Capability - All OAM II measurement configurations provide a 24:1 range of measurement - Well suited for variable flow applications.

Multiple BAS Interface Options - The OAM II includes four field configurable analog outputs and one RS485 interface for native BACnet MS/TP or MODBUS RTU.

Color Graphic Display with Interface - The backlit flow display can also provide temperature, velocity or dP data. The user interface has easy to use menu pages that eliminate the need for special tools.

Air Density Correction - The OAM II is provided with a temperature sensor and an internal absolute pressure sensor for air density correction - Enabling the OAM II to perform active density compensation and output actual or standard volumetric flow.

IDEAL FOR OUTDOOR AIR MEASUREMENT

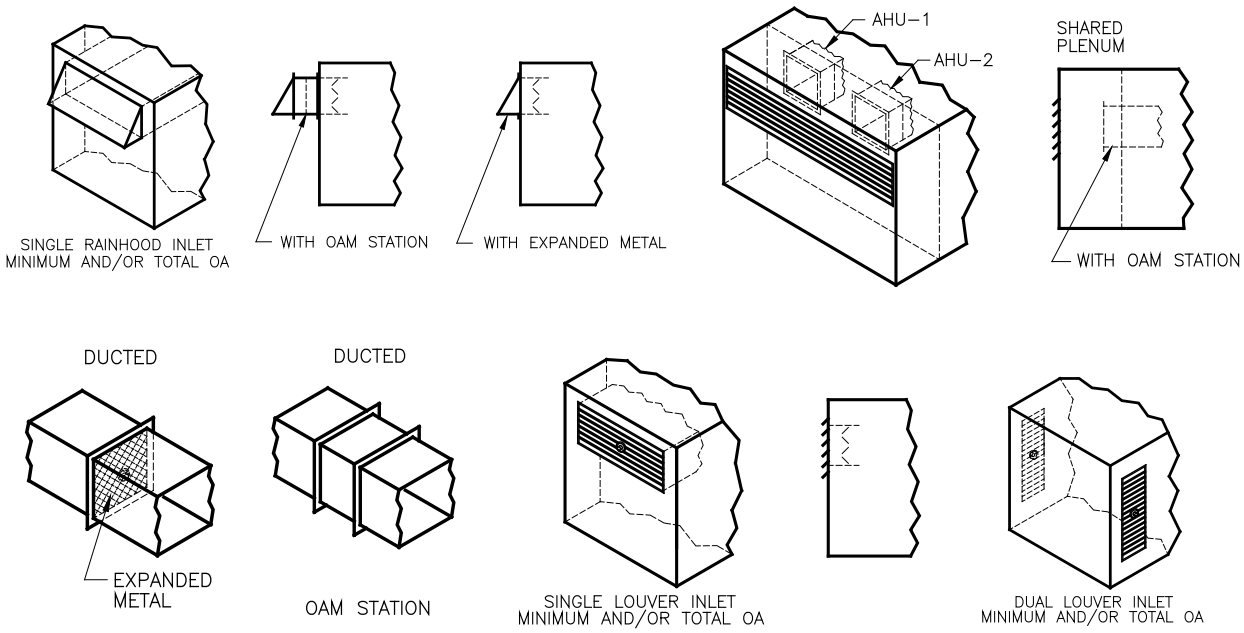
The OAM II has been specifically engineered to overcome the challenges associated with other methods of measuring outdoor air.

Airflow measurement across a fixed inlet minimizes the effects of limited straight duct runs typical of outdoor air applications.

The uni-sensor significantly reduces the effects of airborne particulates and condensing moisture as well as varying directional wind loads and gusts. Particulate and moisture contamination will dramatically impair the functionality and accuracy of other technologies.

TYPICAL APPLICATION GUIDE

The OAM II System can be used with most single, dual, and split inlets found on air handlers and built-up systems. Depicted below are the most commonly encountered inlet configurations. Contact the factory with any unique configuration or those that do not meet the stated minimum installation requirements.

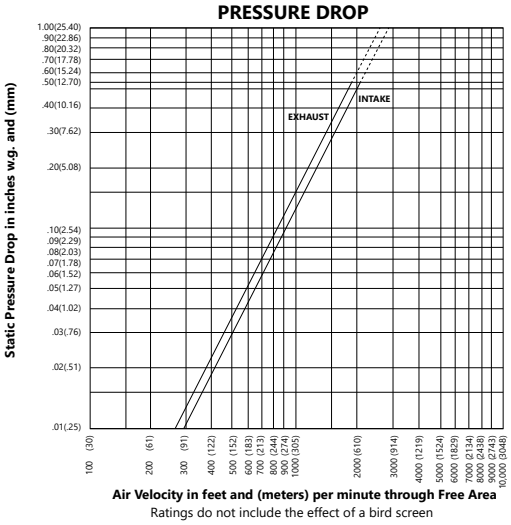


MINIMUM INSTALLATION REQUIREMENTS

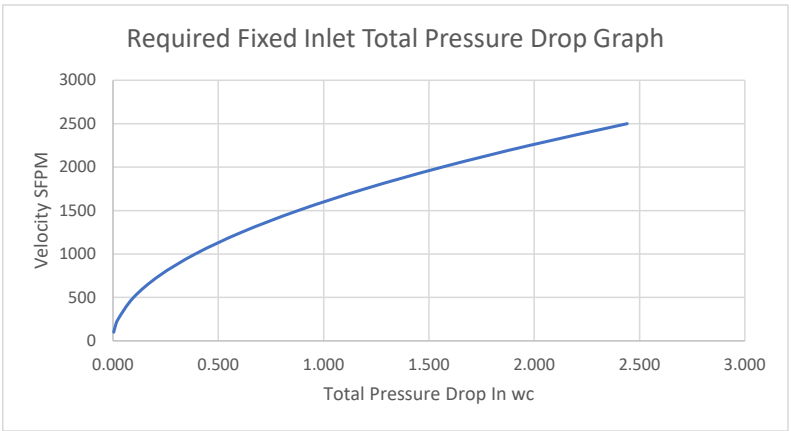
The OAM II is suitable for use on most packaged air handlers and built-up systems where the outdoor air intake is outfitted with an OAM II Station, inlet louver or any fixed inlet, see Required Total Pressure Drop Graph below.

- The uni-sensor should be mounted in the center of the louver or fixed resistance inlet.
- The OAM II Station must be positioned upstream of the outside air intake control damper.

Refer to louver manufacturers data for their associated pressure drop curves.



Example of a louver pressure drop graph



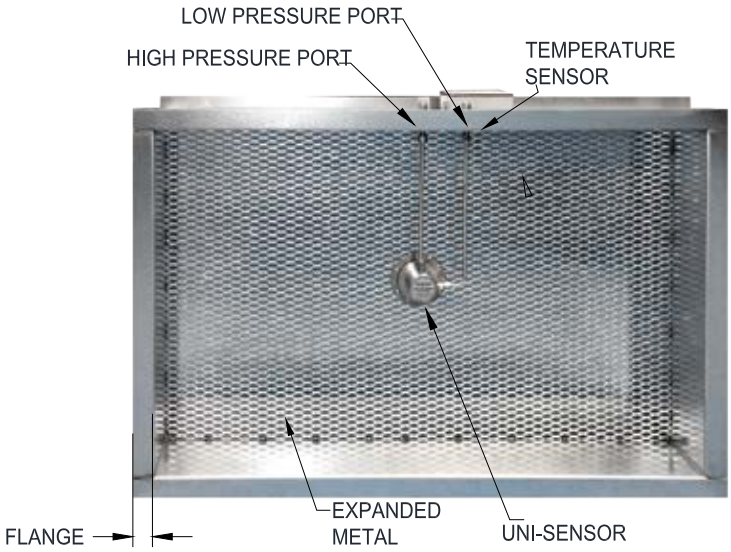
UNI-SENSOR

The patent-pending design of the uni-sensor system is unaffected by gusting wind. This allows for an accurate measurement of the differential pressure created by the airflow entering and moving through the inlet. And it eliminates measurement instability caused by the presence of moisture, and accuracy degradation due to the build up of deposits that can affect other sensing systems.

The uni-sensor is constructed of Type 316 stainless steel and is resistant to corrosion caused by salt and most other airborne corrosives. It combines an outside reference (high pressure) sensor and an inlet airflow (low pressure) sensor into one assembly. They are provided with probe lengths that match the clearance requirements of the inlet where they will be installed. This simplifies installation on both new and retrofit applications.

OAM II AIRFLOW STATION

OAM II Stations simplify installation and commissioning. The station consists of factory mounted sensors on a layer of expanded metal that is welded into a galvanized sheet metal casing. The flow and pressure drop characteristics of the expanded metal is fully defined. This simplifies installation as the airflow station is provided fully characterized from the factory.



Air Monitor Corp. certifies that the OAM II Airflow Measurement System shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 611 and comply with the requirements of the AMCA Certified Ratings Program for 4.5 ft^2 to 18 ft^2 rectangular airflow stations.

amca WORLDWIDE CERTIFIED RATINGS
AIRFLOW MEASUREMENT STATION
AIR PERFORMANCE
AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.®
www.amca.org

OAM II Airflow Measurement System with Airflow Station Performance			
Point	Qref (cfm)	Qams (cfm)	Difference (%)
1	23475	23733	1.09%
2	21411	21547	0.63%
3	17407	17525	0.67%
4	13399	13430	0.23%
5	9402	9316	-0.92%
6	5334	5338	0.08%
7	1342	1317	-1.88%
8	902	898	-0.46%

Qref – AMCA reference measurement
Qams – Air Monitor OAM II Airflow Measurement System with 36" x 36" rectangular OAM II Airflow Station

SPECIFICATIONS*

OAM II TRANSMITTER		
PERFORMANCE	SYSTEM ACCURACY	±5% of reading from 150 to 2400 SFPM
	VELOCITY RANGE	100 to 3000 SFPM
	TEMPERATURE SENSOR ACCURACY	±0.1% at 32°F
	DIFFERENTIAL PRESSURE RESOLUTION	±0.0004 in W.C.
	ABSOLUTE PRESSURE ACCURACY	±0.015 psi from 32°F to 120°F
OPERATING CONDITIONS	AMBIENT TEMPERATURE	-20°F to 180°F (storage)
	FLUID TEMPERATURE	0°F to 120°F without optional heater -40°F to 120°F with heater
	HUMIDITY	0 to 99% RH, non-condensing
INPUT POWER	24 VAC	15 VA @ 24 VAC; 40 VA with heater
	24 VDC	10 W @ 24 VDC; 35 W with heater
TRANSDUCER DESIGN	AVAILABLE OPTIONS	• Single channel, one (1) transducer pair • Dual channel, two (2) transducer pairs
I/O SIGNALS	ANALOG OUTPUTS	Four (4) analog outputs, selectable based on configuration
	SERIAL COMMUNICATION	RS485, BACnet® MS/TP or MODBUS RTU®
	TEMPERATURE INPUT(S)	100Ω 3-wire RTDs, qty provided (one or two) based on configuration
	PRESSURE (BAROMETRIC)	Built-in barometric (absolute) pressure sensor for automatic elevation compensation
ELECTRONICS ENCLOSURE	AVAILABLE OPTIONS	• Aluminum, NEMA 1 • Poly, NEMA 4X with window • Poly, NEMA 4X, no window • Poly, NEMA 4X, no window with heater
	DISPLAY	3.5" diagonal color graphical FTF LCD
PROGRAMMING	Menu driven user interface via four (4) push buttons	
ELECTRICAL CONNECTIONS	POWER	Removable terminal block for use with 16 to 24 gage wire
	COMMUNICATIONS	Removable terminal block for use with 16 to 24 gage wire
	I/O	Removable terminal blocks for use with 16 to 24 gage wire
PROCESS CONNECTIONS	AVAILABLE OPTIONS	• ⅛" FNPT, both High and Low signal connections • ¼" compression, both High and Low signal connections • 3⁄16" hose barb, both High and Low signal connections
APPROVALS	FCC	Part 15 Subpart B, Class A device
	BTL	Certified to BACnet standard ISO 16484-5 rev. 1.12

SPECIFICATIONS CONTINUED*

OAM II FLOW ELEMENT		
FLOW SENSOR DESIGN	UNI-SENSOR	Integral outside reference and inlet airflow sensor, proprietary design
PERFORMANCE	FREE INLET (HOOD)	100 to 3000 SFPM flow range based on configuration
	DUCTED	100 to 3000 SFPM flow range based on configuration
	LOUVER	Operating range from 0.003 to 5.0 in W.C.
MATERIALS OF CONSTRUCTION	316 SS	
OPERATING CONDITIONS	AIRFLOW VELOCITY	0 - 3000 SFPM
	FLUID TEMPERATURE RANGE	-40°F to 120°F
	HUMIDITY	0 to 100% RH, condensing
	ENVIRONMENT	Impervious to airborne dirt, debris and mositure
PROCESS CONNECTIONS	AVAILABLE OPTIONS	• ⅛" FNPT, both High and Low signal connections • ¼" compression, both High and Low signal connections • 3⁄16" hose barb, both High and Low signal connections

***** SPECIFICATIONS subject to change without notice.

MODEL SELECTION GUIDE

Model Number Coding = OAM II-ABCD

A = Model Configurations
- 2 = Single Channel, Single System
- 6 = Dual Channel, Single System
- 8 = Dual Channel, Dual System

B = Enclosure
- 1 = NEMA 1 aluminum enclosure
- 2 = NEMA 4X poly enclosure with window
- 3 = NEMA 4X poly enclosure, no window
- 4 = NEMA 4X poly enclosure, no window with heater

C= Feature Set (Based on model configuration)
- 2 = 24V AC/DC power, four (4) analog outputs, RS485 serial communications, one (1) 100 Ohm 3-wire RTD
- 3* = 24V AC/DC power, four (4) analog outputs, RS485 serial communications, two (2) 100 Ohm 3-wire RTDs

D = Process Connection
- 1 = 1/8" FNPT
- 2 = 1/8" FNPT x 1/4" compression
- 3 = 1/8" FNPT x 3/16" hose barb

***C = 3 when A = 8**

Notes

1. Number of channels is based on Model Configuration selected
2. Default flow ranges: (Standard Conditions)
   - Single Channel, Single System: 150 to 2400 SFPM
   - Dual Channel, Single System Min/Economizer (split):
     Minimum: 100 to 2000 SFPM
     Economizer: 150 to 2400 SFPM
   - Dual Channel, Dual System:
     Channel 1: 150 to 2400 SFPM
     Channel 2: 150 to 2400 SFPM
3. Actual airflow range is determined by minimum and maximum temperatures and altitude
4. Uni-sensor quantity is based on type and size of installation

Please refer to the Ordering Guide and Order Form for additional information regarding flow element/station selection and system operation ranges.

P.O. Box 6358 • Santa Rosa, CA 95406 • USA • Tel +1 (800) airflow • Fax +1 (707) 526-9970
www.airmonitor.com • amcsales@airmonitor.com