SPECIFICATIONS:

LED INDICATORS
Type Ultra bright clear lens
Green Indicates normal condition
Red Indicates alarm condition, flashes

AUDIBLE HORN
Sound Level 90 dB at 10cm
Operation Horn sounds during alarm condition
Re-beep Mode Provides reminder horn muted and alarm not cleared (single fast tone every 2 minutes)

ALARM CONTACTS
Type SPDT relay
Specifications 1A @ 30 VDC,
0.5A @ 125 VAC (resistive load)
Operation On alarm, N.O. contact closes and N.C. contact opens

DIGITAL INPUT
Type Dry contact input
Operation When digital input is grounded (via dry contact)
audible alarm horn will silence ONLY,
Re-beep mode active

PUSH BUTTON
Mute Silences horn, Enables re-beep mode, Resets automatically after alarm condition is cleared

VELOCITY RANGE
30 – 2,000 FPM
ACCURACY
±5% of set point

Catalog Number 51403
includes the following items:
- (1) Basic Velocity Alarm
- (2) 6-32 x 1.5” Mounting Screws
- (1) Reference Guide
- (1) Wall Pluggable 15VDC Power Supply
- (1) Hood Probe with Tubing
- (2) #6 x 1.5” Sheet Metal Screws
- (1) Repositionable Mounting Template
- (2) Bushings for surface mounting

INPUT POWER
Voltage 15VDC ±20% provided by Class II UL approved wall pluggable power supply

ENVIRONMENT
Temperature
Storage 0° to 150° F (-18° to 65° C)
Operating 60° to 80° F (15° to 26° C)
Humidity
Storage 10% to 90% non-condensing
Operating 20% to 90% non-condensing

VELOCITY SENSOR
Type Micro-bridge mass flow sensor
Overpressure 25 PSI

REFERENCE PROBE
Internal Integrated to display face,
No external probe required

HOOD PROBE
Type 7/16” diameter, Feed through bushing, Press fit,
5’ tubing
Material Polyethylene
Tubing Type .170” ID, 1⁄4” OD clear
Tubing Material Ester based polyurethane

PHYSICAL CHARACTERISTICS
Size 2.76”W x 4.5”H x 1.25”D
(70.1mm W x 114.3mm H x 31.75mm D)
Weight Less than 5oz. (142 grams)
Materials Enclosure front & back; White ABS plastic

ORDERING GUIDE

Application Probe
FH1P = Fume Hood Application, Single Probe Kit
FH2P = Fume Hood Application, Double Probe Kit
BS1P = Biological Safety Cabinet Application, Duct Static Probe

HEMCO Corporation
711 S. Powell Road
Independence MO, 64056
AIRFLOW#51403.03.18

HEMCO
Lab Planning Solutions

Phone (816) 796-2900
Fax. (816) 796-3333
Email info@HEMCOcorp.com

Analog Airflow Monitor
Model Number #51403

- For all types of fumehoods & biological safety cabinets
- Simple to Install and Operate
- Continuous Monitoring of Velocity
- Reliable, Accurate and Fast Speed of Response
- Unoccupied Mode – Digital Input
- Alarm Status to BAS – Alarm Relay
- Visual Status Indicators
- Audible Alarm
- Manufactured in the USA.

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Model # 51403 Airflow Monitor

The Airflow Monitor high performance velocity alarm provides the industry with a cost-effective, accurate and reliable velocity alarm to help ensure a safe operating environment for laboratory personnel. The Airflow Monitor is suited for use on all types of fume hoods and biological safety cabinets (BSC).

The Airflow Monitor is installed directly onto the exterior of the device which it is monitoring – fume hood or BSC. For fume hood applications, a small probe is provided, which is installed on the interior sidewall of the hood. This probe is connected to the Airflow Monitor using very small tubing (1⁄4" O.D.; also provided). For BSC applications, a duct static pressure probe is used in lieu of the sidewall probe and is installed into the exhaust duct serving the BSC.

The Airflow Monitor measures airflow by drawing an extremely small amount air from the room through the front reference port (see Front View drawing, pg. 3), through the internal air flow sensor and exits through the sidewall probe or static pressure probe. The airflow measured by the sensor is proportional to the fume hood face velocity and the BSC duct static pressure. If at any time the velocity drops below the calibrated alarm set point, the Airflow Monitor goes into full alarm mode (audible alarm sounds, mute button is initialized, red LED flashes and the alarm relay changes state). The alarm may be silenced by pressing the mute button. However, the red LED and relay remain the same until the alarm condition has been cleared.

Theory of Operation

The Airflow Monitor Velocity Alarm measures airflow velocity using an ultra-sensitive micro-bridge airflow sensor coupled with a high-resolution (24-bit) A/D converter. The resulting digital airflow measurement is extremely accurate, precise and repeatable. The alarm set point is programmed using a simple one-step operation which calibrates and stores data into the microprocessor's non-volatile memory.
The microprocessor continually compares the real time measured airflow to the programmed alarm set point. When the measured airflow is greater than the calibrated alarm set point, the green LED is illuminated to indicate normal operating conditions. When the measured airflow is less than or equal to the calibrated alarm set point, the unit goes into alarm mode alerting the lab occupants of a potentially unsafe condition.

Installation
The Airflow Monitor can be mounted to a standard single gang electrical box (see Back View drawing, pg. 3) using the included 6-32 machine screws. For instances where an electrical box is not available, the Airflow Monitor can be surface mounted by using the supplied hole template and drilling 5 holes:

- (2) – 7/64" holes for supplied mounting sheet metal screws
- (2) - 11/16" holes for supplied bushings for tubing and wire
- (1) – 7/8" hole for the power connector

An additional 7/16" diameter hole is required for the mounting of the hood probe into the fume hood sidewall.

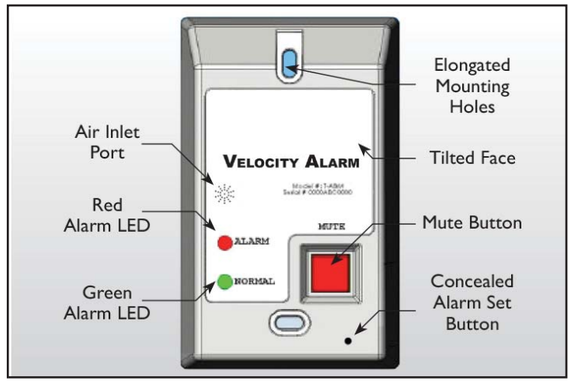
Programming the Alarm Set Point
Once all components are functioning (e.g.: hood controls,exhaust and supply fans, power, etc.) the Airflow Monitor can be commissioned.

For fume hood applications:

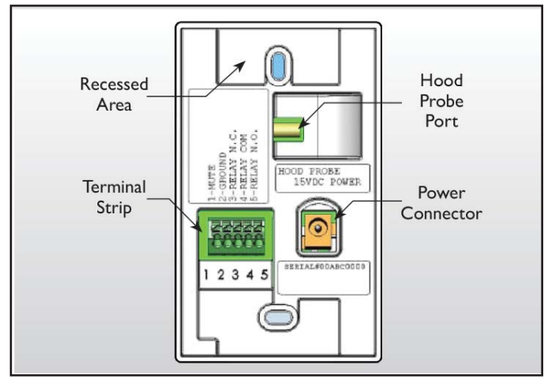
- Confirm the exhaust airflow volume is under accurate and stable control.
- Move the fume hood sash to the position that will achieve the desired face velocity alarm value and verify by traverse measurement.
- Press the concealed set button on the front of the AirFlow Monitor using a paper clip (see front view description for location) and move away from the fume hood.
- The Airflow Monitor will chirp slowly 3 times, then fast 10 times then one long chirp. That's it! The first 3 chirps give the technician time to stand back from the Airflow Monitor, the next 10 chirps are actual sample readings the unit is gathering and the final long chirp tells the technician the Airflow Monitor is done. The entire commissioning process as described, takes only 10 seconds!

To prevent unauthorized calibration, we recommend placing the calibration sticker over the alarm calibration hole.

Specifications:



Front View



Back View

- Elongated mounting holes for precise alignment
- Slightly tilted front surface for easy viewing
- Highly visible status indicators
- Air inlet port is built-in to the front surface eliminating the need for external room reference probe
- Large and easy to operate mute button
- Concealed alarm calibration button to prevent unauthorized calibration
- Recessed area allows mounting to almost any type of electrical box without interference from the box. Also designed for surface mounting without an electrical box.
- Hood reference probe is easily connected to airflow sensor port using 1⁄4" tubing (provided).
- Terminal strips are simple spring actuated press terminals for reliable electrical connections without having to loosen and tighten screws.
- Direct plug-in power connection to UL Listed Class II power supply provided with every alarm.

System Component Connections