

## Fume Hood Monitor



**Figure 1. APOGEE Fume Hood Monitor.**

The APOGEE™ Fume Hood Monitor\* (FHM) is a laboratory fume hood safety device which provides continuous measurement and display of fume hood face velocity. The Fume Hood Monitor is the only device available packaged with a service program to install it, start it up, and calibrate it in accordance with laboratory and fume hood performance listing guideline.

The FHM alerts the Fume Hood user with an audible and visual alarm in the event of a fume hood exhaust system failure. It is designed to operate as a standalone monitor and as an integral networked component of the APOGEE Automation System to ensure user safety of constant volume fume hoods.

The FHM utilizes through the wall, thermal anemometer velocity measurement technology. The sensor, mounted within the FHM electronic assembly, measures the velocity of the airflow moving through the fume hood via a sampling tube connected to the fume hood wall.

\*Patent No. 5439414

The location of the sample tube is critical to the proper operation of the monitor. The Fume Hood Evaluation Kit, part number 546-00320 will aid an installer in locating the proper location of the sample tube to obtain an accurate velocity measurement. This velocity measurement is calibrated to match the average velocity of air moving through the sash face opening.

Local user alarms for high and low face velocity provide visual and audible annunciation whenever the measured face velocity exceeds the user defined alarm limits. The emergency push-button allows the user to annunciate an emergency condition at the fume hood such as a chemical spill. All alarms can be sent out over the APOGEE network or to a remote alarm horn via the integral digital output (DO) point.

For fume hood exhausts that are turned off or setback during unoccupied hours, the FHM provides an unoccupied mode, which can be set via a local switch and over the APOGEE network. The unoccupied mode eliminates unnecessary alarms when the laboratory is not in use.

The FHM also has an integral digital input (DI) point which provides additional features at the fume hood such as monitoring the sash height, initiating an auxiliary alarm, or connecting to a remote occupied/unoccupied switch.

Networked Fume Hood Monitors throughout your entire facility are integrated to a central safety or maintenance workstation (see Figure 2) to ensure immediate response to critical alarms and to continuously archive fume hood-operating conditions for regulatory compliance.

## Features

- Through-the-wall face velocity monitoring for constant volume fume hoods
- Digital display of face velocity in FPM or m/s
- APOGEE FLN communications which transmit FHM status information or receive commands from the workstation PC
- Occupied/unoccupied operating modes via local switch and networked command
- Fume Hood Status LED's for normal and alarm conditions
- User defined alarm limits
- Emergency pushbutton
- User definable auxiliary pushbuttons (network connection)
- Local alarm horn with silence switch tamper proof setup functions
- Digital output for remote alarms
- User definable digital input (e.g., sash height alert)
- Automatic return from power failure
- Set-up parameters defined and modified using the Portable Operators Terminal (Laptop)

## Description

The Fume Hood Monitor consists of the following:

- An integral thermistor sensor which monitors face velocity
- A Liquid Crystal Display (LCD) which displays face velocity and operating messages for certain conditions (e.g., low face velocity, high face velocity, general failure, user alarm, OFF)
- 2 LED status lights: green indicating normal operation, red indicating alarm condition or OFF
- Audible alarm buzzer
- Wiring terminators for input, FLN communications, digital input and digital output points
- All required tubing and mounting hardware plus installation, startup and calibration instructions
- Laptop connection for calibration
- 2 auxiliary buttons (host use)

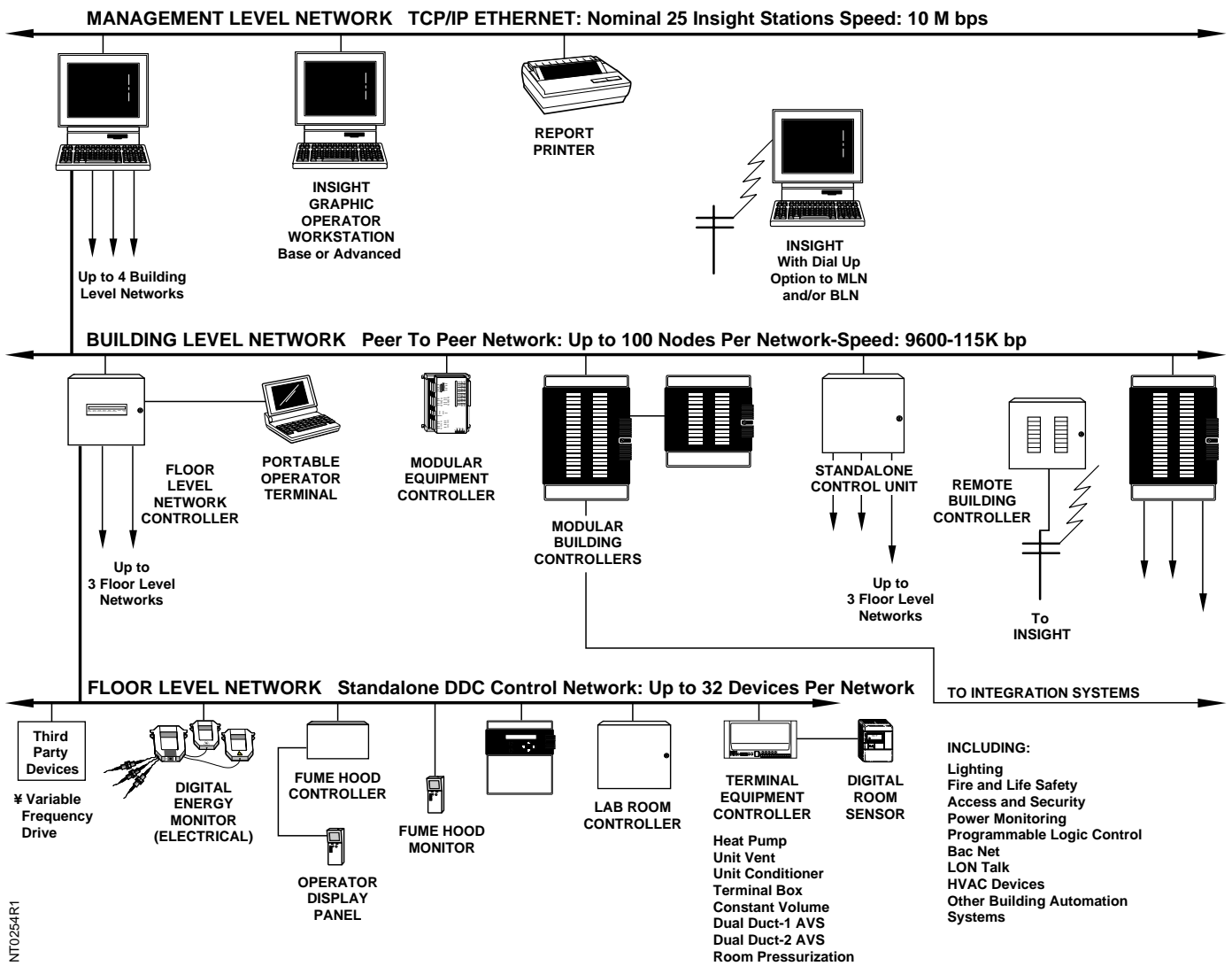


Figure 2. Fume Hood Monitor connection to the APOGEE Automation System.

## Specifications

Dimensions ..... 3.08" W x 7.42" H x 1.5" D  
(78.23 mm x 188.47 mm x 38.1 mm)

### Power Requirements

Operating Range ..... 24 Vac 50/60 Hz  
Power Consumption ..... 2.5 Va (class 2)  
@ 24 Vac

### Ambient Conditions

Storage Temperature ..... -40°F to 167°F  
(-40°C to 75°C)  
Operating Temperature ..... 32°F to 120°F  
(0°C to 49°C)  
Humidity Range ..... 20 to 93% (non-condensing)

### Display

Size ..... 3 digit LCD  
Range ..... 50 to 250 FPM  
(0.25 m/s to 1.25 m/s)  
Resolution ..... 1 FPM (adjustable)  
(0.005 m/s)  
Update Rate ..... 1 second

LEDs ..... 2 - 1 green  
1 red

Alarms ..... 1 audio buzzer  
(85 dB @ 10 cm, 2.3 KHz resonance)  
1 red LED  
Signal to central terminal via  
APOGEE FLN

Remote Alarm Output ..... 24 Vac (12 Va) Class 2

Auxiliary Digital Input ..... Dry Contact

### Face Velocity Sensor

Accuracy ..... ±10 FPM (0.05 m/s)

### Agency Listings

UL Listing  
for Smoke Control ..... UL 864, UUKL

UL Listing  
for Energy Management ..... UL 916, PAZX

UL Listing  
for Signal System Unit ..... UL 864, UDTZ

UL Listing  
for Process  
Management Equipment ..... UL 916, QUAY

ULC Listed ..... UL/ORD-C100

## Ordering Information

Description	Part Numbers
Fume Hood Monitor	546-00303a
Mounting Kit	546-00303b
Fume Hood Monitor User's Card	125-1990
Fume Hood Monitor Owner's Manual	125-1991
Fume Hood Evaluation Kit	546-00320

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