Before installing, calibrate the probe. Read this manual entirely.

GENERAL DESCRIPTION

This monitor continuously measures all low toxicity fume hoods and can be installed on the surface of a hood. It provides visual, audible, and remote alarms.

Figure 1
## Table 1. Description of the Front of the Monitor Reference Figure

<table>
<thead>
<tr>
<th>Index</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mounting screws</td>
</tr>
<tr>
<td>2</td>
<td>Air inlet</td>
</tr>
<tr>
<td>3</td>
<td>Air inlet</td>
</tr>
<tr>
<td>4</td>
<td>Air inlet</td>
</tr>
<tr>
<td>5</td>
<td>Press the button, which is then connected to the alarm. Two screws secure the mount to the back plate.</td>
</tr>
<tr>
<td>6</td>
<td>Press the button, which is then connected to the alarm. Two screws secure the mount to the back plate.</td>
</tr>
<tr>
<td>7</td>
<td>External interface</td>
</tr>
<tr>
<td>8</td>
<td>Power jack</td>
</tr>
<tr>
<td>9</td>
<td>Power cord</td>
</tr>
<tr>
<td>10</td>
<td>Power cord</td>
</tr>
</tbody>
</table>

## Table 2. Description of the Rear of the Monitor Reference Figure

<table>
<thead>
<tr>
<th>Index</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mounting holes</td>
</tr>
<tr>
<td>2</td>
<td>Mounting holes</td>
</tr>
<tr>
<td>3</td>
<td>Two screws secure the mount to the back plate.</td>
</tr>
<tr>
<td>4</td>
<td>Two screws secure the mount to the back plate.</td>
</tr>
</tbody>
</table>
WARNING

VICTIM OF ELECTRICAL EQUIPMENT

WHEN INSTALLING OR REPAIRING MONITORS IN THE TOOL'S ALSO, OBSERVE ALL NECESSARY PRECAUTIONS
ALWAYS WEAR EYE PROTECTORS WHEN USING POWER

INSTALLATION

Step 1: Push

Step 2: Push

Step 3: Push

Step 4: Push

Step 5: Push

Step 6: Push

Step 7: Push

Step 8: Push

Step 9: Push

Step 10: Push

Figure 2: Additional: Many lume hoods will require a side wall adapter hose
PROCEDURE

Step 1: Determine the location for the wall bracket and drill a hole through the wall.

Step 2: Mount the wall bracket to the wall using the supplied screws.

Step 3: Use the back plate (Figure 2, item 3) to route the power cord from the back of the monitor to the hole in the wall bracket.

Step 4: Use the back plate (Figure 2, item 3) to route the power cord from the back of the monitor to the hole in the wall bracket.

Step 5: If the monitor will be connected to external devices (such as a relay) in the future, route the power cord through the wall bracket.

Step 6: Mount the monitor to the wall using the supplied screws (Figure 1, item 1).

Step 7: If a side wall adapter is used, connect the sleeves to the adapter as shown in Figure 3.

Step 8: Mount the wall adapter to the wall using the supplied screws.

Step 9: Mount the back plate (Figure 2, item 3) and secure it with the screws provided.

Step 10: Secure the hose clamp and other necessary components to prevent accidental startups.

NOTE: Lengths are approximate to prevent accidental startups and oversize which can result in damage to the equipment.
or similar instrument capable of displaying air flow in "feet per minute".

Use a calibrated ALNOR thermomonometer (ALNOR-8500, 8575, APM360)

**Equipment Required:**

**Guidelines Specific to Application.**

Completely aware of the regulations and personal calibrating this monitor must be conducted within the ventilation apparatus. Conducted within the ventilation apparatus. Established on the basis of toxicity or hazards for monitoring any ventilation apparatus are only by qualified personnel. Proper guidelines calibration of this monitor must be performed

**Warning**

* Within the range of the monitor between a low flow set point and a high flow set point. Both set points must be satisfied. This calibration procedure will program the monitor to operate with each monitor because each hood installed.

**Calibration**

In Figure 4, proceed now to the Calibration section. The installation of the monitor is complete. The instrument should look as shown.

**Procedure**

**Step 6:** Release the trigger

**Step 5:** Press the power button

**Step 4:** Lift the instrument

**Step 3:** Set the position of the front cover before and the rear cover is closed

**Step 2:** Apply the power cord to the rear side of the monitor

**Step 1:** Connect the power cord (Figure 2)

**Step 10:** Secure the monitor to the back

**Step 9:** Rounded from the rear of the frame

**Step 8:** Adjust as shown

**Step 7:** The power cord is shown

**Step 6:** For training, see Specifications section

**Step 5:** Securing the screws

**Step 4:** The front side of the monitor before and the rear cover are closed

**Step 3:** Adjust as shown

**Step 2:** Apply the power cord to the rear side of the monitor

**Step 1:** Connect the power cord (Figure 2)
External Interface

Alarm Test

Remove alarm from the alarm panel.

Local Alarm

Apply power to the monitor and wait at least 10 minutes for the monitor.

Procedure:

1. Confirm that the monitor was installed properly.
2. Apply power to the monitor and wait at least 10 minutes for the monitor.
3. Set the flame hood to a low air flow, usually around 50 to 100 lpm.
4. Using the calibrated thermomonometer, determine the velocity through the face of the hood by taking a detailed velocity traverse. Divide the face area of the hood into equal increments. A six-inch grid area is recommended for an accurate traverse. Compute the average velocity for each area of the hood into equal increments. Assume that the traverse result is an average velocity of 1.24 l/s.
5. Release the Test/Reset button while the center LED is lit on the Bar Graph.
6. This process will take at least 5 seconds.
7. The analog display will increment from 50 to 250 lpm by moving the needle from left to right. The least position is 50 lpm. The red-yellow boundary is 100 lpm. The yellow-green boundary is 150 lpm. The red boundary is 250 lpm.
8. Press the Test/Reset button for 1 second when the displayed value approaches the set point value (60 lpm in this case).
9. Step 9: The monitor will then measure air flow at the low set point for approximately 30 seconds.
10. Step 10: Now set the flame hood for a high air flow, usually around 120 lpm or higher.

Step 1: The analog display will increment from 50 to 250 lpm. The needle from left to right.

Step 2: The analog display will increment from 50 to 250 lpm. The needle from left to right.

Step 3: The analog display will increment from 50 to 250 lpm. The needle from left to right.

Step 4: The analog display will increment from 50 to 250 lpm. The needle from left to right.

Step 5: The analog display will increment from 50 to 250 lpm. The needle from left to right.

Step 6: The analog display will increment from 50 to 250 lpm. The needle from left to right.

Step 7: The analog display will increment from 50 to 250 lpm. The needle from left to right.

Step 8: The analog display will increment from 50 to 250 lpm. The needle from left to right.

Step 9: The analog display will increment from 50 to 250 lpm. The needle from left to right.

Step 10: The analog display will increment from 50 to 250 lpm. The needle from left to right.

Step 11: Ensure velocity of 62 l/min.

Step 12: The flame hood to a low air flow, usually around 50 to 100 lpm.

Step 13: The flame hood to a low air flow, usually around 50 to 100 lpm.

Step 14: The flame hood to a low air flow, usually around 50 to 100 lpm.

Step 15: The flame hood to a low air flow, usually around 50 to 100 lpm.

Step 16: If the alarm signal is correct, remove alarm from the alarm panel.
**Maintenance**

**Alarm Test**

The audible and visual alarms can be tested by pressing and holding the Test/Reset button for 5 to 10 seconds. During this time, both alarms will be cycled on-off. When the audible alarm is cycled on, the alarm condition is indicated by the external interface connector. The audible alarm will remain silenced until the alarm condition is removed. The audible alarm can be silenced by opening the alarm silence input pins.

**Remote Alarm Silencing**

The audible alarm can be silenced by pressing the Test/Reset button. The audible alarm is silenced.

**Local Alarm Silencing**

The audible alarm is silenced.

---

**Normal Operation**

1. **Step 14**: The monitor will sound the audible alarm 3 times to indicate that the multipoint calibration was successful. The monitor will then operate with the multipoint calibration procedure.

2. **Step 13**: The monitor will then sound the audible alarm once per second.

3. **Step 12**: The monitor will sound the audible alarm once every 2 seconds. The audible alarm is silenced.

4. **Step 11**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.

5. **Step 10**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.

6. **Step 9**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.

7. **Step 8**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.

8. **Step 7**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.

9. **Step 6**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.

10. **Step 5**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.

11. **Step 4**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.

12. **Step 3**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.

13. **Step 2**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.

14. **Step 1**: The second display will increment from 0 to 250 U/L in 5 U/L steps. The display is incremented.
Specifications

The monitor will issue an alarm under the following conditions:

- For a period which exceeds the "Delay Phase", then it will activate all alarm outputs.
- If the alarm condition exists, the monitor will continue to issue alarms until the alarm condition no longer exists.

**Alarm Delay Timing**

The external alarm inputs are connected to open or closed, the bar graph segment in use indicates when the external alarm input pins in the external interface are open or closed. When the external alarm input pins are open, the bar graph corresponds to the high alarm condition. When the external alarm input pins are closed, the bar graph corresponds to the low alarm condition. The bottom LED corresponds to the high alarm condition, and the top LED indicates the low alarm condition.

**Bar Graph Display and External Alarm Input Indicator**

The bar graph display is divided into three segments:

- Green area: 60% to 100% of H.A.V.
- Yellow area: 40% to 60% of H.A.V.
- Red area: 0 to 40% of H.A.V.

The alarm value is displayed as follows:

- The analog display shows the alarm value from 0 to the highest alarm value set during Call.

**Analog Display**

Alarm Disabling

Alarms can be disabled through the Test/Reset button. See the Custom Monitor Configuration through Keypad section of this manual.

Remote Alarm Output

The remote alarm output is a relay to signal a remote location. The alarm output can not be silenced and remains active while the alarm condition exists.
End Configuration Menu

Activate Alarms

The audible alarm on the monitor will sound when the audible alarm is triggered. The audible alarm will also sound when the alarm trigger condition is reached. This choice corresponds only to the second bar graph LED, and applies to the monitor.

Perform Field Calibration

The audible alarm on the monitor will sound when the audible alarm is triggered. The audible alarm will also sound when the alarm trigger condition is reached. This choice corresponds only to the second bar graph LED, and applies to the monitor.

Disable/Enable Alarms

Perform

The audible alarm on the monitor will sound when the audible alarm is triggered. This choice corresponds only to the second bar graph LED, and applies to the monitor.

End Configuration Menu

Disable/Enable High Flow Alarms

Perform

The audible alarm on the monitor will sound when the audible alarm is triggered. This choice corresponds only to the second bar graph LED, and applies to the monitor.

Change Volume

Perform

The audible alarm on the monitor will sound when the audible alarm is triggered. This choice corresponds only to the second bar graph LED, and applies to the monitor.

End Configuration Menu

Disable/Enable Alarms

Perform

The audible alarm on the monitor will sound when the audible alarm is triggered. This choice corresponds only to the second bar graph LED, and applies to the monitor.

Custom Configuration Menu

Choices are:

- Pressing and holding the Test/Reset button for more than 5 seconds activates a custom configuration menu.

Through Keypad

Custom Monitor Configuration
Caution: Do not disturb existing wiring to pins 9 and 10.

Closed contacts: pins 7 and 6.


Signal at pin 12, ground at pin 11.

Contacts (normally closed).

 Pins 3 and 4. Must be driven by isolated relay.

Positive input at pin 2. Negative input at pin 1.

RELAY ALARM OUTPUT:

BACK-UP POWER INPUT:

USER ALARM INPUT:

SILENCE INPUT:

REMOTE ALARM:

External Interfaced Connections can be made to the monitor using the "external Interface" (Figure 2, Item 6). External wires are routed through the back plate (Figure 2, Item 11). External Interfaced connections are labeled with a 12-position socket connector supplied with the monitor. Additional specifications for relays and functions available are as follows. Refer to the specifications and illustrations for more details.
Troubleshooting Guide

Possible Cause and Corrective Action

Symptom

Possible Cause

Action

Maintenance
Specifications

**Dimensions:**

- Operating Conditions:
  - Temperature: 55 to 80°F (13 to 30°C), non-condensing
  - Humidity: 40% to 100% (40% to 70°C), non-condensing

- Storage Conditions:

- Back-up Power Source:
  - User provided 9 VDC, 300 mA source
  - Polarity: (+) tip, (-) sleeve
  - 9 VDC output
  - Alarm
    - Flashing bar graph LED display for external
    - 120 or 200 VAC/50/60 Hz, depending on model
  - Power Source:
    - 120 VAC or 24 VDC, 0.3 A, 12 VDC, 0.75 x 0.5 in, red indicator
    - 2200 Hz, 85 dB (at 10 cm), buzzer
  - Alarms:
    - Requires external source of +9 to +11 VDC
    - Interfaced with open contacts
    - Accepts normally-closed relay contacts
    - 10 seconds

- Remote Alarm Silence:
  - User Alarm Input:
  - Delay Phase:

- Alarm Delay Timing:
  - High Alarm: 250 mV to 1 kV (1.27 cm/s)
  - Low Alarm: 50 mV (0.25 cm/s)
  - Anywhere within measurement range: Factory

- 5-segment light bar
- 5-segment light bar
- Analog meter with color-coded background
- Geiger
- +10% of reading or +10 ft/m, whichever is greater
- 50 to 250 ft/m (2.5 to 127 cm/s)

**Accuracy:**

- 5% of reading

**Range:**

- Air Flow Measurement

- GAS 435
BAD AIR IS BAD BUSINESS

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TRADENMARKS

SAFETY
BAD AIR IS BAD BUSINESS

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TRADEMARKS

the monitor

for, use proper eye protection. Use only the power source that is delivered with
the vicinity of electrical equipment. If cutting or opening into a hood for the mon-
All necessary precautions must be observed when installing or making repairs in

SAFETY
WARRANTY AND REPAIR INFORMATION
BEGIN

The 30-second calibration period is not required. After the 30-second calibration period, the monitor will take 5-7 seconds to display the correct temperature. The 30-second calibration period is recommended for best accuracy. If the 30-second calibration period is not used, the monitor will take longer to display the correct temperature. The 30-second calibration period is recommended for best accuracy.

END