

LABCONCO 500

GUARDIAN AIRFLOW MONITOR

Operating and Instruction Manual



Model: Guardian 500

- Airflow Alarm
- Sash Alarm
- External Alarm
- Setback function

Used for alarm monitoring on
Fume Hoods

22/06/09

OPERATOR DISPLAY PANEL

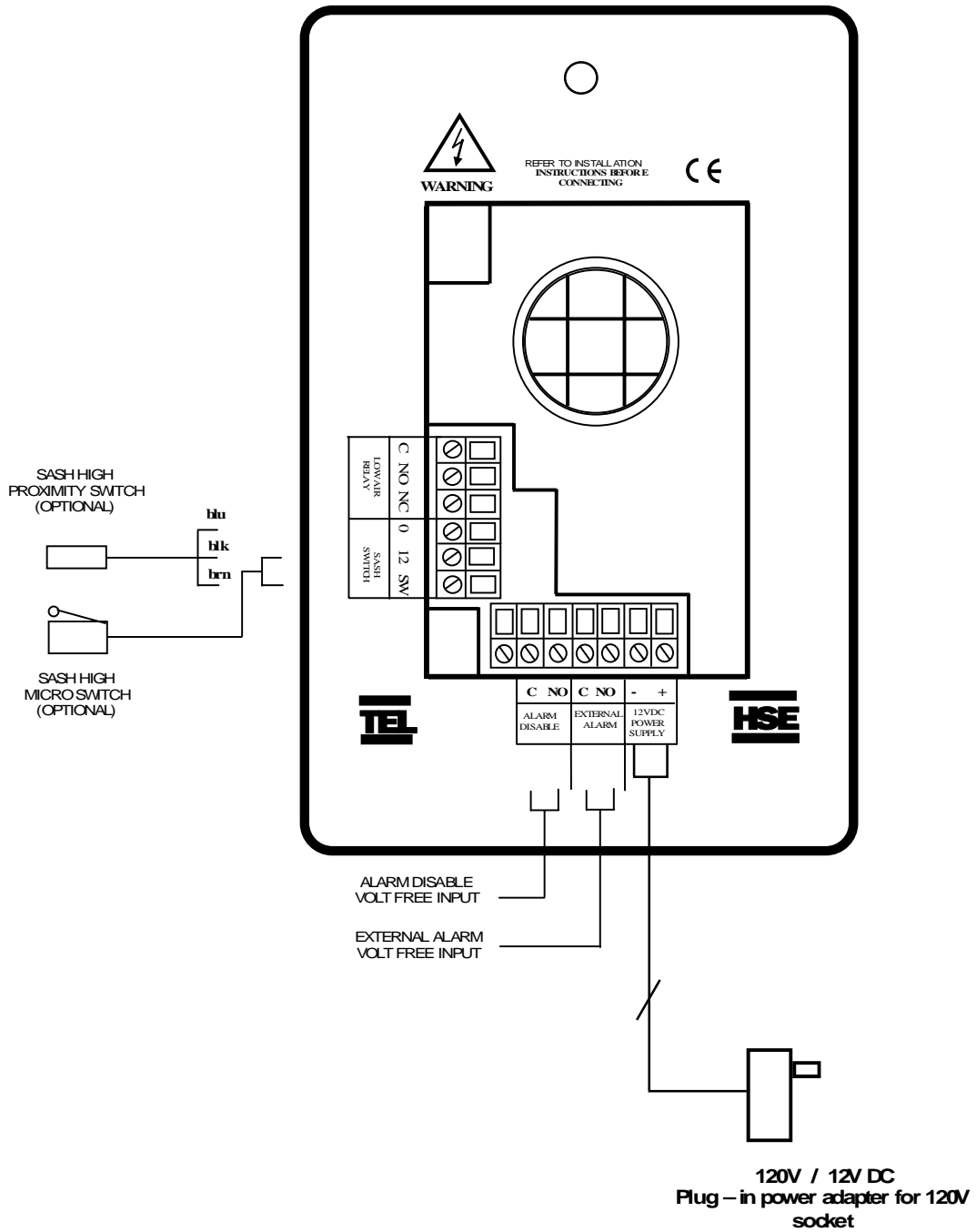


← Built in Airflow sensor

← LED indication & Mute button

← LED indication and Alarm Set Potentiometer

1.0 Connection details :-



1.1 General Description

All systems comprise of the following components :-

- 1 – Guardian 500 Alarm unit,
- 1 – AC power supply
- 1 – Inner sidewall adaptor

If the Sash Alarm System option is included there will also be a sash micro switch or proximity switch.

Operator Features --- the alarm has the following operator features :-

Normal Airflow - **Green LED (Not flashing)** will be displayed if the airflow is greater than the Low air alarm point.

Low Airflow - **Red LED (flashing)** will be displayed if the airflow is lower than the Low air alarm point.

Sash High - **Amber LED (Flashing)** will be displayed when the Sash is raised above the max safe working opening.

Audible Alarm -- the Audible alarm will sound (can be muted) in the Air Low and the Sash High alarm condition

Night Set-back -- when the Night Setback input is activated the Audible alarm will be muted and the **Setback LED will illuminate.**

External Alarm -- when the External Alarm input is activated the Audible alarm will sound and the **External Alarm LED will illuminate.**

External Connections -- the alarm unit will have the following connection points :-

External Alarm --- volt free relay input (close contact to activate the input)

Alarm Disable --- volt free relay input (close contact to activate the input)

Sash High Input:

- a. Connection point for Sash High **micro switch**.
(Switch contact to close and remain closed in Sash High condition)
- b. Connection point for Sash High **proximity switch**.
(Switch contact to close and remain closed in Sash High condition)

Note:- Use input a. OR input b. for the Sash High alarm

Output 1 --- volt free relay output for **Low Air Alarm**

Power supply --- low voltage DC power supply

1.2 Events / actions

Safe airflow

- Airflow above alarm level (e.g. > 60fpm)
- Green LED on

Low airflow

- Airflow below alarm level
- Red LED on (Flashing)
- Audible alarm sounds -- can be muted via Mute pushbutton
- Low air relay operates

Reset : -- when airflow rises above Low air level the Low air alarm resets automatically

Sash High

- When the input configured as Sash High is activated
- Amber LED on
- Audible alarm sounds
- Audible can be muted via Enter pushbutton

Reset: -- when Sash lowered to safe position and input de-activated.

Setback

- When Night set-back input is activated
- Red LED on (Flashing)
- Audible alarm muted

External alarm

- When External alarm input is activated
- Red LED on (Flashing)
- Audible alarm sounds – can be muted via Enter pushbutton

2.0 Guardian 500 Installation Procedure

1. The Fume Hood comes prepared to accept the Guardian 500 airflow alarm system.
2. First, remove the front panel by lifting it straight up and out away from the hood.
3. Next, remove the cover plate located at the top of the right corner post.
4. Install the monitor to the upper right corner post using the two screws that came with your kit. See figure 2.
5. The connection of the air monitor, adaptor and hose will follow next.
 - a. Connect one end of the supplied sidewall adaptor with nut included in your kit by removing the uppermost plastic plug from the ½” hole in the sidewall of the hood and replacing it with the adaptor and nut. The nut is located inside the fume hood. See figure 2.
 - b. Cut the white hose (1.0” OD x .79” ID) supplied with your monitor. Connect one end of the hose to the sidewall adaptor. See Figure 3.
 - c. Connect the other end of the white hose to the air monitor. This completes the airway connection per figure 3.
6. In your kit you will find an electrical cover plate and snap-in electrical outlet. Snap the outlet in place making sure that the outlet is secure.
7. Next, remove and discard the electrical cover plate that is on the junction box at the top of your hood.
8. Wire the cover plate that you just prepared to the existing wires inside the hood junction box per the wiring diagram on top of the fume hood. **Warning: make sure that the power is disconnected to your hood prior to connecting the new cover plate.**
9. Secure the cover plate to the junction box with the existing screw.
10. Plug the output cord of the power supply to the back of the monitor and plug the power supply into the outlet on the cover plate of the junction box.
11. Replace the front panel and calibrate your unit using the following calibration guide.

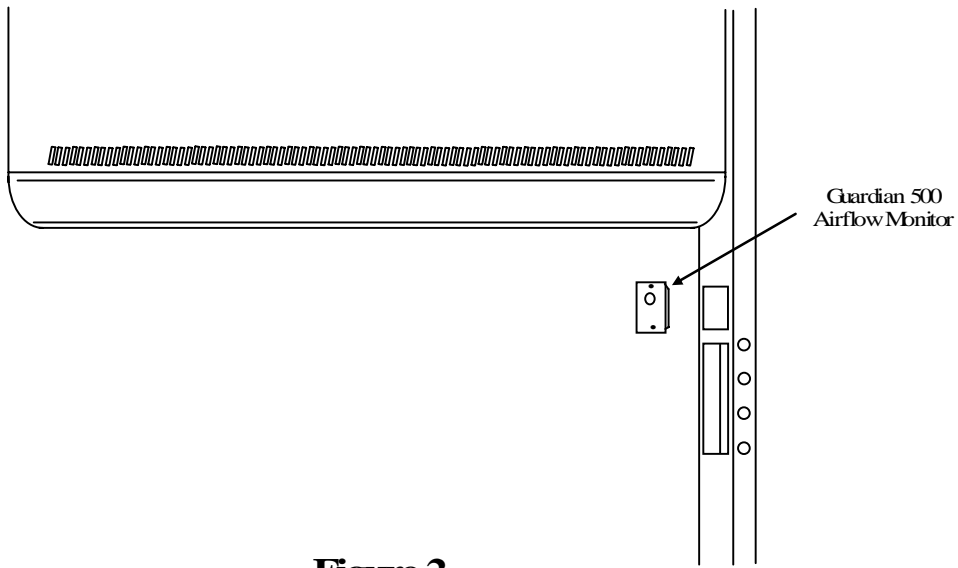


Figure 2

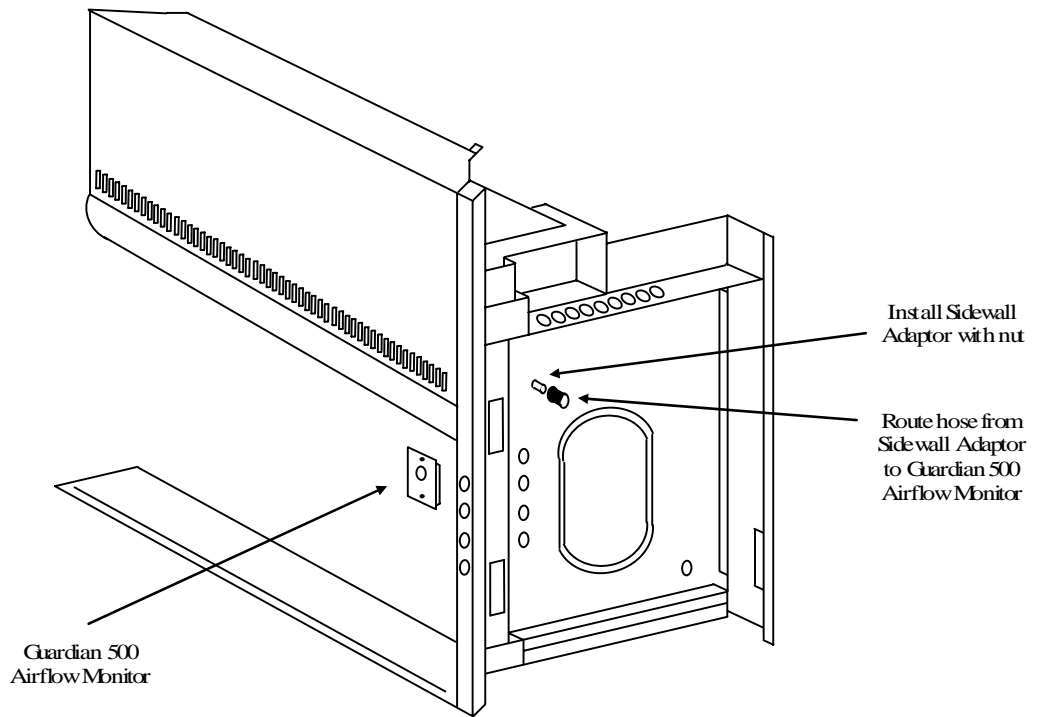


Figure 3

2.1 Guardian 500 Calibration :-

Each alarm module and enclosure/fume hood is unique and needs to be individually calibrated in the field. The procedure for the adjustment is as follows:

1. Double check the installation to make sure that monitor and power supply are properly installed.
2. Allow 10 minutes for the monitor to warm up once the power has been connected.
3. Determine the low flow set point for your monitor. This is the value where the monitor will first indicate a low flow condition. The red light will be on for this value. Refer to your industrial hygiene officer for the proper low flow set point or consult the table below.
4. Adjust your enclosure/fume hood airflow to the low flow set point as previously determined. The exhaust flow can be lowered by adjusting the speed control on the FilterMate or by using the adjustable damper on the exhaust blower. Typical alarm conditions are set at face velocities of 10 to 20 feet per minute below the normal operating conditions due to supply and exhaust air fluctuations, as well as room air cross drafts. See note 8 if the low airflow volume or sash opening cannot be adjusted.
5. Using a properly calibrated thermo anemometer, determine the face velocity through the face of the enclosure by taking a detailed velocity traverse. Divide the face into equal increments. One reading per square foot of face area is normally recommended for an accurate traverse. Compute the average velocity for this area.
6. If the red light alarm is on, slowly turn the adjustment screw counterclockwise until the green light is activated. If the green light is on, slowly turn the adjustment screw clockwise until the red light comes on. Slowly turn the adjustment screw back until the red light is activated. It is important that these adjustments be done in small increments, at intervals of about 30 seconds apart to allow for delayed reaction of the alarm itself. The alarm low flow set point should now be set and the red light activated.
7. Readjust the enclosure airflow to its normal operating levels. The green light should now be activated. Calibration is now complete.

Enclosure Operating In Flow Speed	Alarm Condition Set Point Speed
100 fpm	80-90 fpm
80 fpm	60-70 fpm
60 fpm	40—50 fpm

8.Note: If the airflow volume or sash opening cannot be adjusted, then a ¼ to 1/3 of a turn counter clockwise can be adjusted to set the alarm condition at 10-25% below normal operating levels.

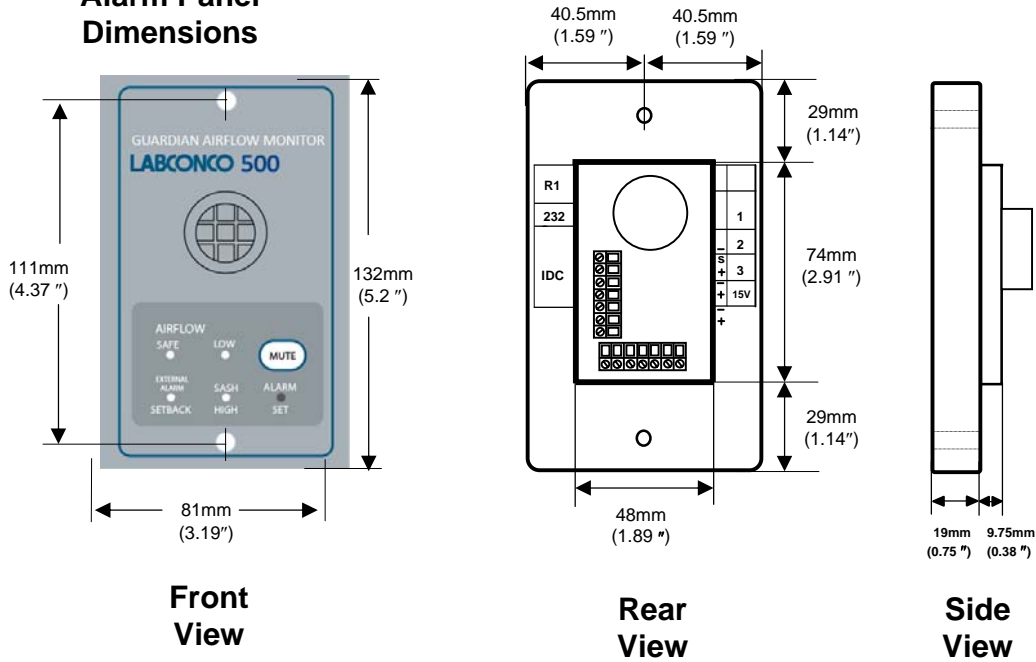
2.2 Guardian Alarm Activation :-

The audio and visual alarm will activate approximately 10-30 seconds after an alarm condition is detected. To temporarily mute the audible alarm, press and release the mute button.

NOTE: After an alarm condition has been detected, the red light will stay on. The audible alarm will remain muted until the airflow returns to normal levels.

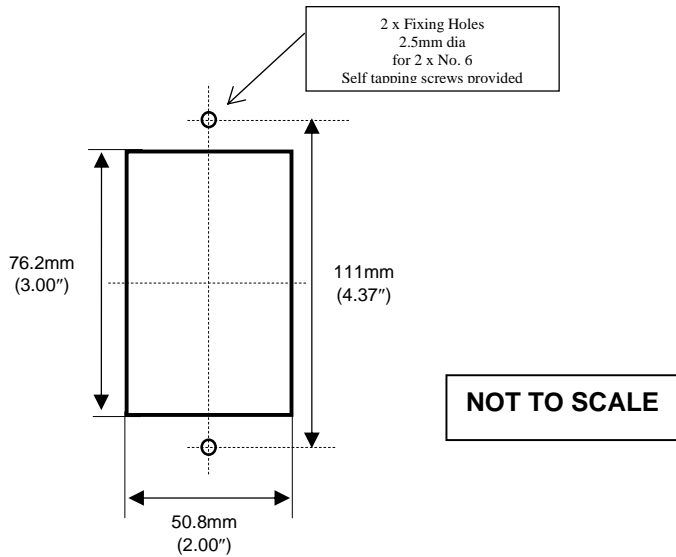
3.0 Dimensions

Alarm Panel Dimensions



Panel Cutout Dimensions

3.00" x 2.00"



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7.0 Contact us :-

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HOLLAND SAFETY EQUIPMENT

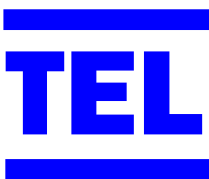
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