

GreenFumeHood® Filtration Technology | GFH3 | User Manual



Table of Contents

Introduction.....	2
Safety Notices.....	2
Smart Command Module.....	3
Connecting the GreenFumeHood to a Network.....	4
Connecting the GreenFumeHood via Wi-Fi.....	4
Connecting the GreenFumeHood via Ethernet (Category 5) Cable.....	5
Embedded Web Service Displays.....	6
Settings.....	7
Maintenance.....	9
Calibrating the Anemometer.....	9
Molecode S V0 reset.....	10
Managing the Fan Rotation Speed Setpoint.....	10
Resetting the GreenFumeHood to the Default Factory Settings.....	10
Replacing the Prefilters.....	11
Replacing the Neutrodine Unisorb Filters.....	14
Alarms and Troubleshooting.....	17
Sample Screens.....	19

Introduction

By choosing a chemical fume hood equipped with GreenFumeHood® Filtration Technology, you have chosen an efficient and responsible way to ensure safety. Erlab's 50+ years of expertise in the field of laboratory fume hoods provide unparalleled filtration quality to ensure your users are properly protected when handling chemicals in the laboratory. The new GreenFumeHood (GFH) Technology uses an innovative and straightforward mode of communication called Smart Technology.

This powerful interface uses light to intuitively and effortlessly communicate with users so they can focus on their work: handling chemicals. Your ductless GFH guarantees that you are protected when working with hazardous chemicals and powders that pose an inhalation risk. The Erlab filtration technology traps hazardous particles and molecules and returns clean air back into the laboratory. The system's connectivity provides real-time safety alerts and individual device usage reports, which are sent via the e-Guard App.

Safety Notices

The effectiveness of your device is dependent upon whether it is used correctly and monitored regularly.

Your laboratory may also benefit from ergonomic, economic, and ecological advantages provided by the GreenFumeHood throughout its life cycle. The Erlab Safety Program (ESP) was set up to guarantee your safety. It is important to validate the safety parameters before using the device for the first time and whenever it is used for a different application.

Handling substances in a fume hood that are carcinogenic, mutagenic, or toxic for reproduction (CMRs) may require additional safety measures. Before using any of these substances, always double-check the safety datasheet (SDS) for instructions on using the product safely, along with any applicable government regulations.

Do not use the GreenFumeHood in an environment with substances that are prone to explosion. GFH technology is not rated for explosion-proof environments.

The Neutrodine Unisorb® filters delivered with the GreenFumeHood must be removed from the packaging and installed correctly. These filters must also be suitable for the type of chemicals being handled in order to guarantee user safety. Prior to being sold to you, your application was reviewed by Erlab scientists and approved. If your application changes (or has changed already), please contact Erlab to review your application to assure the filtration technology is still appropriate for your chemical handlings.

Erlab recommends that filter breakthrough tests are conducted regularly and that the embedded electronic anemometer is calibrated at least once a year.

The quantities of the chemicals handled in the enclosure should not be greater than those listed in the guide to approved chemicals (the Chemical Listing) for GFH. The Association Française de Normalisation (AFNOR) standard NF X 15-211: 2009 only applies to chemicals subject to an occupational exposure limit (OEL).

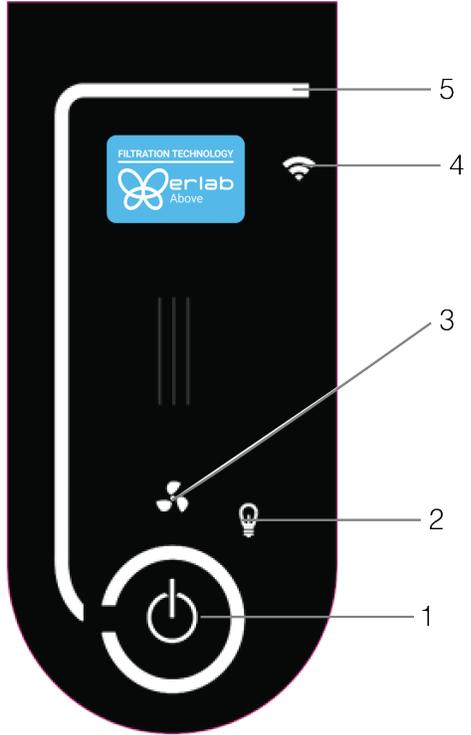
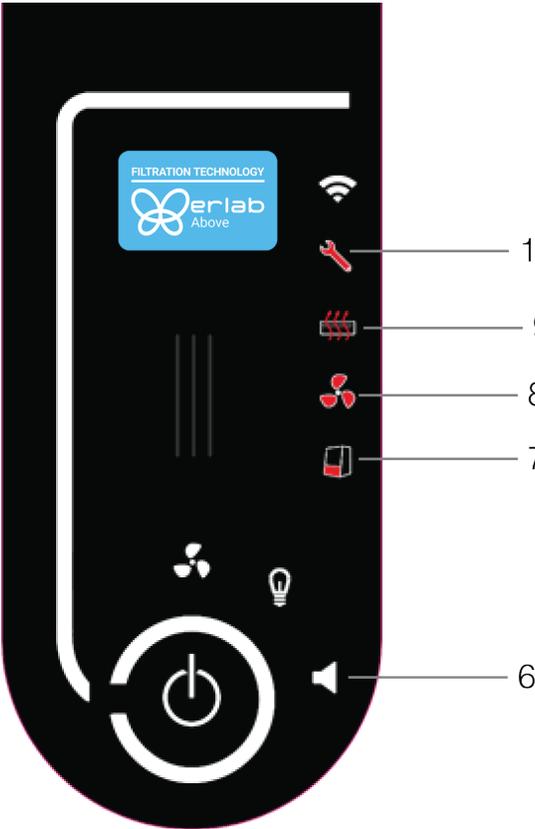
Moreover, the fume hood's filter(s) must be replaced if any chemicals are detected downstream of the filter(s). New filters must be stored in their packaging, kept in a dry location, and laid flat. (See recommendations for storing and using the filters.)

Erlab recommends keeping a logbook that is specific to each fume hood, which documents the substances handled, how often they are used, and the maintenance operations performed for the fume hood.

Finally, please remember that all the modules in the GreenFumeHood technology contain electronic boards that can potentially carry a voltage up to 48 VDC. Although standards and regulations consider this within the safer low-voltage range, it is still dangerous to handle electronic parts when the power is on. Always unplug the power from your fume hood before removing, placing, or replacing any module.

Smart Command Module

The features of the Smart Command Module are shown in the table below.

<ol style="list-style-type: none"> 1. Power on/off button—Turns off the fume hood fans and lights. When this button is activated, it glows with a bright white light. When it is off, the light does not illuminate. 2. Lights—On/off button for the fume hood lights. When this button is activated, it glows with a bright white light. When it is off, the light does not illuminate. 3. Fans—On/off button for the fume hood fans. When this button is activated, it glows with a bright white light. When it is off, the light does not illuminate. 4. Network connection indicator—Indicates whether the GreenFumeHood is connected to a network, either through Wi-Fi or an Ethernet connection. When a network connection is present, this icon glows with a bright white light. When no network connection is available, the light does not illuminate. 5. Smart halo indicator (front as shown, plus sides and bottom)—Illuminates when the fans and lights are on, and blinks when the GreenFumeHood is under alarm. When the halo is active, it glows with a bright white light. When it is off, the light does not illuminate. 	 <p>Diagram illustrating the Smart Command Module features 1 through 5:</p> <ul style="list-style-type: none"> 1. Power on/off button 2. Lights button 3. Fans button 4. Network connection indicator 5. Smart halo indicator
<ol style="list-style-type: none"> 6. Mute alarm button—Appears when an alarm is activated. Press this button to mute the audible alarm. 7. Face velocity alarm indicator—A red light that displays when the face velocity is below the recommended limits, during normal operation, this light is not visible. 8. Fan status alarm—A red light that displays when one or more fan is malfunctioning or not working. During normal operation, this light is not visible. 9. Filter replacement alarm—A red light indicating when the primary Neutrodine Unisorb filters must be replaced. During normal operation, this light is not visible. 10. Maintenance alarm—A red light indicating that maintenance is needed. During normal operation, this light is not visible. For more details, see the section, “Embedded Web Service Displays” on page 8. 	 <p>Diagram illustrating the Smart Command Module features 6 through 10:</p> <ul style="list-style-type: none"> 6. Mute alarm button 7. Face velocity alarm indicator 8. Fan status alarm 9. Filter replacement alarm 10. Maintenance alarm

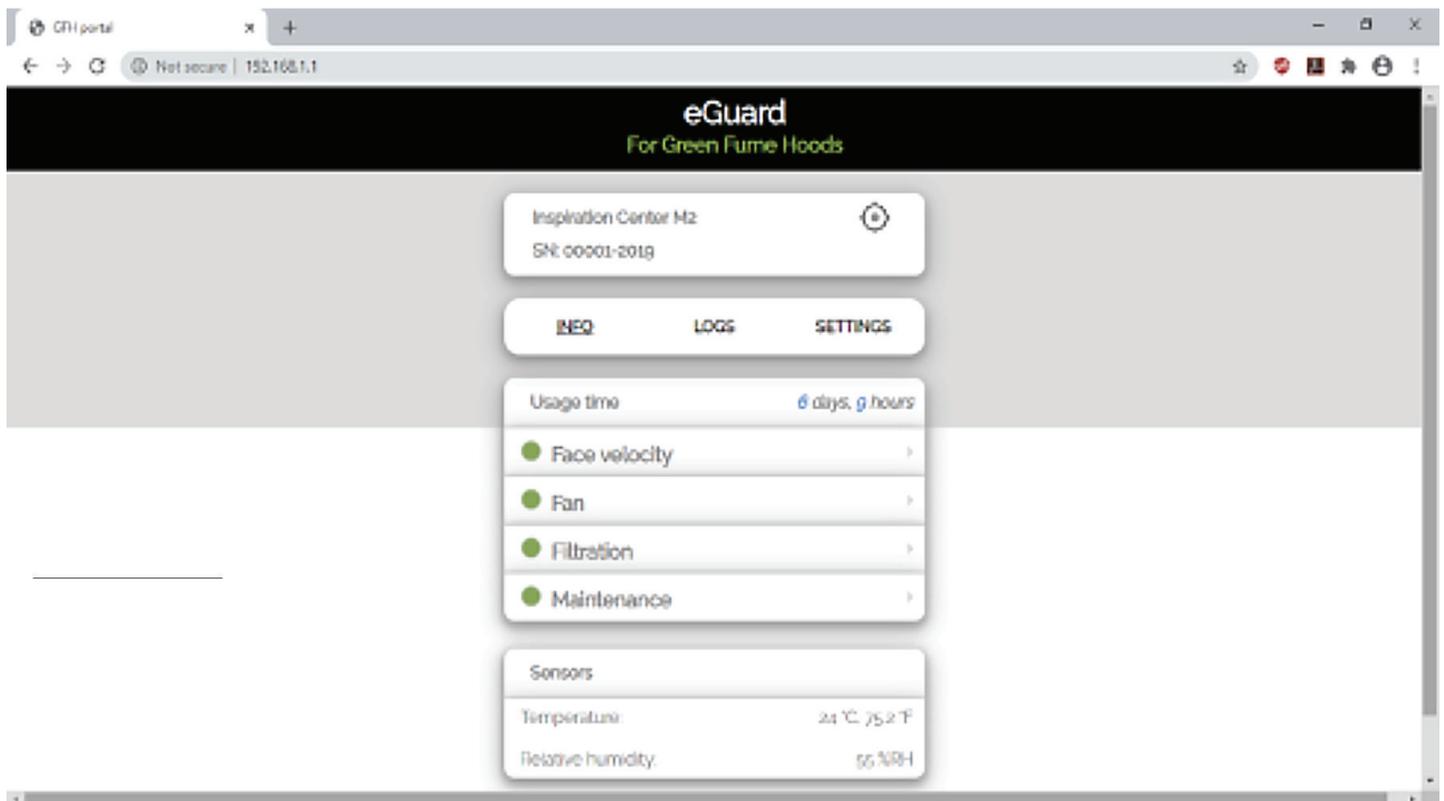
Connecting the GreenFumeHood to a Network

You can connect your GreenFumeHood to a network via Wi-Fi or an Ethernet cable.

Connecting the GreenFumeHood via Wi-Fi

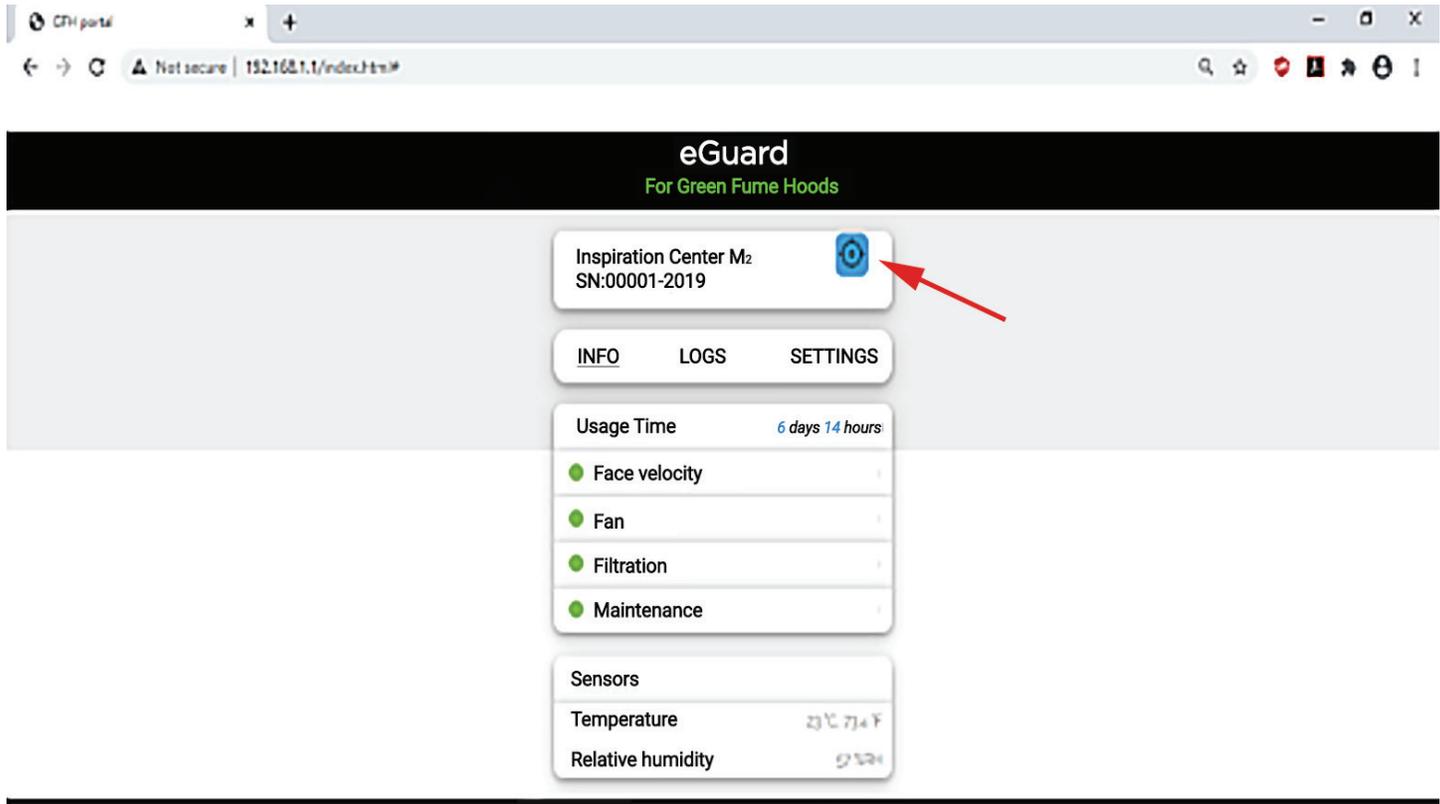
To connect the GreenFumeHood to a network via Wi-Fi:

1. Launch the Wi-Fi network settings window or dialog box on your operating system (Windows, Mac OS, iOS, or Android).
2. Select the Wi-Fi network GFH-XXXXX-XXXX (where XXXXX-XXXX is the serial number of the GreenFumeHood).
3. If prompted, enter the password for the Wi-Fi network. The default password is GFH-2018.
4. Launch your Internet browser (Google Chrome, Microsoft Edge, Mozilla Firefox or Safari), and enter the following address in the browser bar: <http://192.168.1.1>. A page displays similar to the one below.



Locate Hood

In a lab with more than one GreenFumeHood, to confirm which hood you are Wi-Fi connected to, click on the bull's eye in the upper right corner and the Smart Command light pulses 4 times.



Connecting the GreenFumeHood via Ethernet (Category 5) Cable

To connect the GreenFumeHood to a network via Ethernet (Category 5) cable:

1. Connect the Ethernet cable from your computer to the Ethernet port of the Green Fume Hood. The Ethernet port for the fume hood is located at the top of the Smart Command Module. Note: For ease of connection, a 5-foot (1.5m) extension cable is already plugged into the Ethernet port with the loose end located above the hood in the filtration area. You will need an Ethernet cable coupler or an Ethernet cable with one female end to connect to this extension cable.
2. Configure the Ethernet settings for your computer to match your network parameters. The recommended settings are:
 - Protocol—TCP/IP V4
 - IP address—192.168.0.201 (do not use 192.168.0.205, that is default IP for each Green Fume Hood)
 - Subnet mask—255.255.255.0
 - Gateway—(leave empty, do not enter an address)

Embedded Web Service Displays

Hood Ventilation Off

eGuard
For Green Fume Hoods

Green Fume Hood M1
SN: 12345-1801

INFO LOGS SETTINGS

Usage time 0 days, 0 hours

- Face velocity
- Fan
- Filtration
- Maintenance

Hood Ventilation On

eGuard
For Green Fume Hoods

Green Fume Hood M1
SN: 12345-1801

INFO LOGS SETTINGS

Usage time 0 days, 0 hours

- Face velocity
- Fan
- Filtration
- Maintenance

Hood in Operation and Alarm

eGuard
For Green Fume Hoods

Green Fume Hood M1
SN: 12345-1801

INFO LOGS SETTINGS

Usage time 0 days, 0 hours

- Face velocity
- Fan
- Filtration** !!!

VOC Detected: replace primary filter(s)
Column: 3

- Maintenance** 🔧

History of Events

eGuard
For Green Fume Hoods

Green Fume Hood M5
SN: 10000-1900

INFO LOGS SETTINGS

EVENT HISTORY

Date/Time	Event
2019-08-12 09:46	Low Face Velocity (OFF)
2019-08-12 09:46	Low Face Velocity (ON)

Export data

Settings

To access the Settings menu, enter the following if prompted:

- Username—gfh
- Password—2018

1

2

3

Ethernet Settings

DHCP Disable

Ethernet configuration

DHCP:

IP Address: >

Subnet mask: >

Gateway: >

DHCP Enable

Ethernet configuration

DHCP:

Wi-Fi Settings

Access Point
DHCP Automatic

Wifi configuration

Access Mode **Access point** | Ad hoc

SSID

Security **WEP** | WPA | WPA2

Password

Adhoc

Wifi configuration

Access Mode Access point | **Ad hoc**

DHCP

SSID

Security **WEP** | WPA | WPA2

Password

Maintenance

Calibrating the Anemometer

The embedded anemometer must be calibrated, or reset, upon initial installation and then routinely throughout the hood's life. The recommended frequency is once per year and with any filter change. The procedure you follow to calibrate the anemometer depends on the state of the fume hood:

- The fume hood fan(s) are off and the sash is raised to the working position.
- The fan(s) are on and the sash is raised to the working position.

Calibrating the Anemometer when the Fume Hood Fan(s) are Off and the Sash is Raised to the Working Position

To calibrate the anemometer when the fume hood fan(s) are off and the sash is raised to the working position:

1. If it is not already, raise the sash to the working height as determined by a sash stop or label on the hood structure detailing proper working height (usually around 14 to 16" above the worksurface).
2. On the Smart Command Module, continue pressing the on/off button for 10 seconds. The alarm beeps, the maintenance and face velocity alarm icons are switched on, and the Smart halo indicator light blinks. When activated, the maintenance and face velocity alarm icons change to a solid red.
3. Press the Fan(s) on/off button (not the Power on/off button) to start the calibration process. Please be patient throughout the calibration process, as it requires 3 to 6 minutes to complete.
4. The anemometer is stabilized for 30 to 60 seconds. When stabilization ends, the alarm beeps. The 0 FPM (0 m/s) value is calculated during 1 to 2 minutes and recorded.
5. The alarm beeps again, and the ventilation automatically turns on to the working rotation speed setpoint.
6. Stabilization occurs again for 30 to 60 seconds. When stabilization ends, the alarm beeps. The 80 FPM (0.4 m/s) value is calculated during 1 to 2 minutes and recorded.
7. The alarm beeps again, and the maintenance and containment icons switch off automatically.
8. The fans turn off automatically, which concludes the calibration process.

Calibrating the Anemometer when the Fume Hood Fan(s) are On and the Sash is Raised to the Working Position

To calibrate the anemometer when the fume hood fan(s) are on and the sash is raised to the working position:

1. Important: During and after the calibration, the hood will shut off automatically. Before starting the anemometer calibration, assure that there are no open chemical containers, storage containers or on-going experiments or processes within the hood.
2. If it is not already, raise the sash to the working height as determined by a sash stop or label on the hood structure detailing proper working height (usually around 14 to 16" above the worksurface).
3. On the Smart Command Module, continue pressing the on/off button for 10 seconds. The alarm beeps, the maintenance and face velocity alarm icons are switched on, and the Smart halo indicator light blinks. When activated, the maintenance and face velocity alarm icons change to a solid red.
4. Press the Fan(s) on/off button (not the Power on/off button) to start the calibration process. Please be patient throughout the calibration process, as it requires 3 to 6 minutes to complete.
5. The anemometer is stabilized for 30 to 60 seconds. When stabilization ends, the alarm beeps. The 80 FPM (0.4 m/s) value is calculated during 1 to 2 minutes and recorded.
6. The alarm beeps again, and the ventilation automatically turns off.
7. Stabilization occurs again for 30 to 60 seconds. When stabilization ends, the alarm beeps. The 0 FPM (0 m/s) value is calculated during 1 to 2 minutes and recorded.
8. The jingle sounds and the maintenance and containment icons switch off automatically, which concludes the calibration process.

Molecode S VO reset, No Anemometer operation

When the fume hood is turned on, we are looking for the lowest Molecode S value measured during the past 7 days or 72 hours of operation to continue.

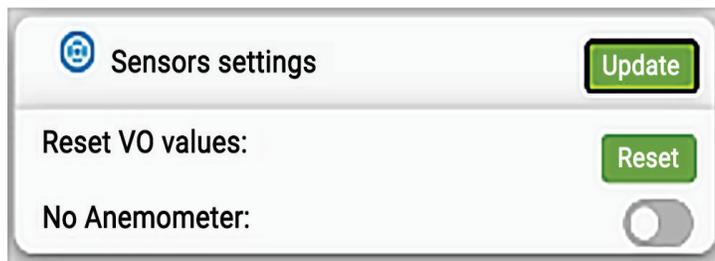
There is a way to restart the process.

1. To connect to the embedded interface, go to <http://192.168.1.1/update.html>. Enter **ach** for the username and password.

2. Click the Reset button to find the lowest Molecode S value.

3. Click the Update button to save.

4. Use the No Anemometer setting if you need to force the hood on without an anemometer connected (not yet installed, faulty, etc.) or are performing advanced troubleshooting. When this setting is enabled, the button is on the right and highlighted in green and the fans will only operate at the Working Setpoint speed, regardless of sash position. Do not use this setting unless asked to by Erlab tech support.



Managing the Fan Rotation Speed Setpoint

You can manage, or adjust, the rotation fan speed setpoints under the following conditions:

- When the sash is closed
- When the sash is in the working position

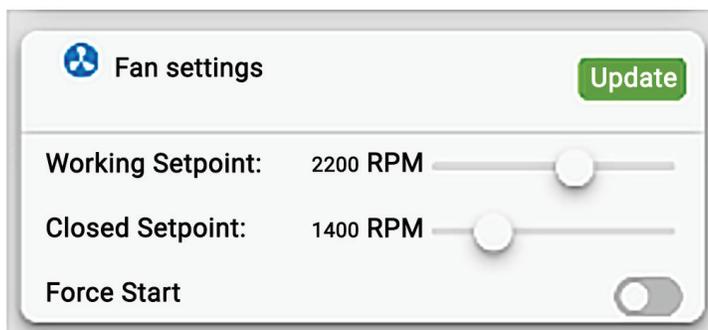
To adjust the rotation fan speed setpoints:

1. Connect to the embedded interface, connect via Wi-Fi or Ethernet, open a browser and go to <http://192.168.1.1/update.html>. Enter **ach** for the username and password.

2. Adjust the appropriate setting as needed:

- **Working Setpoint**—Use the slider at the right of this label to adjust the fan setpoint for the fume hood when the sash is in the working position.
- **Closed Setpoint**—Use the slider at the right of this label to adjust the fan setpoint for the fume hood when the sash is fully closed.
- **Force Start**—Starts the fans even when there are no primary filters installed. When this is enabled, the button is on the right and highlighted in green. Do not use this setting unless asked to by Erlab tech support.

2. Click the **Update** button to save your new settings.



Resetting the GreenFumeHood to the Default Factory Settings

You can reset the GreenFumeHood to the default factory settings if needed. To do this, use a pen or small tool to press the recessed **Reset** button located on the top of the Smart Command Module. After you press the Reset button, the fume hood restarts automatically and reapplies the factory settings.

The following values are reset to the defaults.

Default Value Name	Default Setting
Ethernet Internet Protocol (IP) address	192.168.0.205 Subnet address—255.255.0.0 Gateway address—192.168.0.127
Wi-Fi IP address	192.168.11 SSID—GFH-SN Access point mode No password
Threshold MDS/MDA/MDF	Medium sensitivity
Background noise option	Not Checked
Fan rotation speed	Working position - 2,400 RPM Sash closed - 1,400 RPM
Alias	My device
Date	Date before reset
Bluetooth	Activated
eGuard	Activated
Wi-Fi	Activated
Start-up mode	Ventilation + Lighting
Sound signal	100%
Lighting	100%
Temperature trigger 1	40° C
Temperature trigger 2	60° C
Humidity	80%
History	Empty

Replacing the Prefilters

You can use three different types of prefilters in the GreenFumeHood. These are shown in the table below.

Prefilter Type	Purpose	Standard or Optional
S	Traps large particles to avoid clogging main filters	Standard
A	Increases the ability to trap inorganic acids	Optional
K	Increases the ability to trap ammonia	Optional

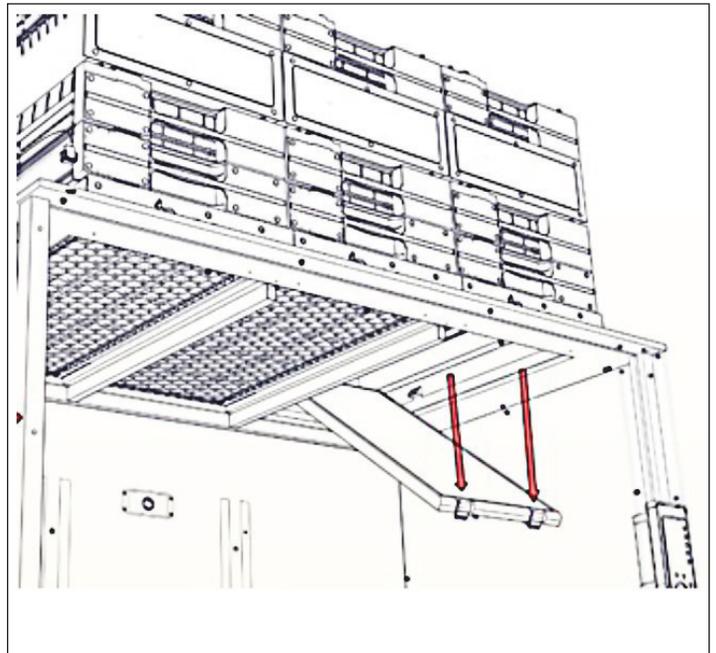
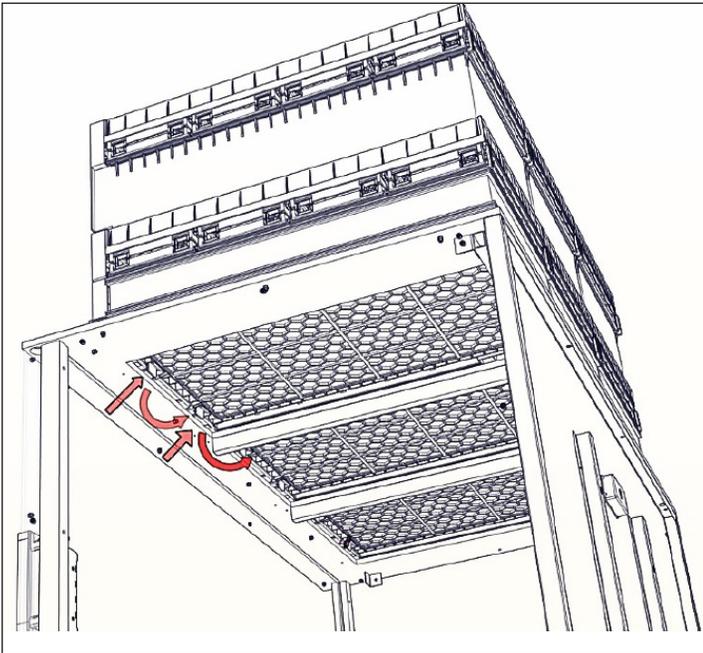
The prefilter replacement frequency will be dependent upon the type and volume of chemicals used in the hood. Refer to the application-specific report Erlab issued for this hood, which is included with the hood's documentation package. (*Continued next page*)

Important: A risk assessment must be performed before following this procedure to select personal protective equipment (PPE). By default, and at a minimum, a laboratory coat, safety glasses, safety gloves and safety shoes should be worn. Additional safety measures may be necessary depending on the chemicals that are trapped on the filters.

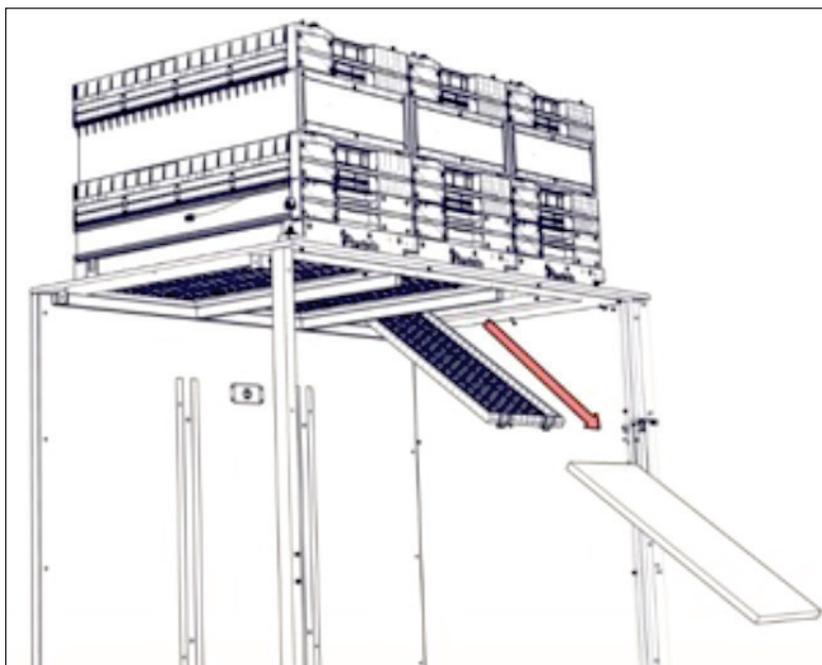
Note: If the prefilters are contaminated by hazardous particles, turn the fans on first before removing the prefilters and pack the used prefilters in the bag while the prefilters are still inside the running hood.

To replace the prefilters:

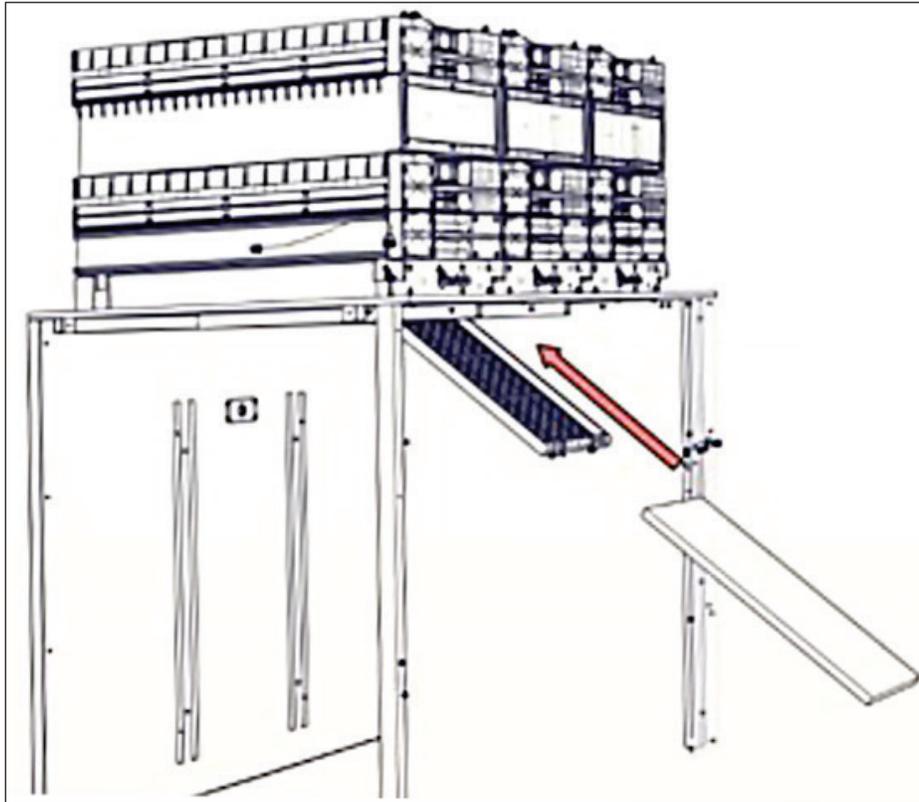
1. Access the prefilter from the trap door, located at the bottom of each filtration column. To do this, first remove the two retaining screws, push the two clips (located at the front of the column) inward toward the back of the hood, and pull down the front of the trap door.



2. Remove the prefilters from the trap door as shown in the picture below. Note: If the prefilters are contaminated by hazardous particles, turn the fans on first before removing the prefilters and pack the used prefilters in the bag while the prefilters are still inside the hood.



3. Install the new prefilters as shown in the picture below.



The order (stacking) of the prefilters is very important and dependent upon your application's needs. Your hood has 1 of 4 possible configurations:

Prefilter Position	Prefilter Types			
	Standard Only	Standard and Acid	Standard and Ammonia	Acid and Ammonia
Top	(empty)	(empty)	Ammonia	Ammonia
Middle	(empty)	Acid	Ammonia	Ammonia
Bottom	Standard	Standard	Standard	Acid

The prefilters are labeled accordingly.

Important: Be mindful of the proper order when installing the replacement prefilters.

4. Close the trap door. Make sure the clips are re-engaged, and tighten the screws to secure.

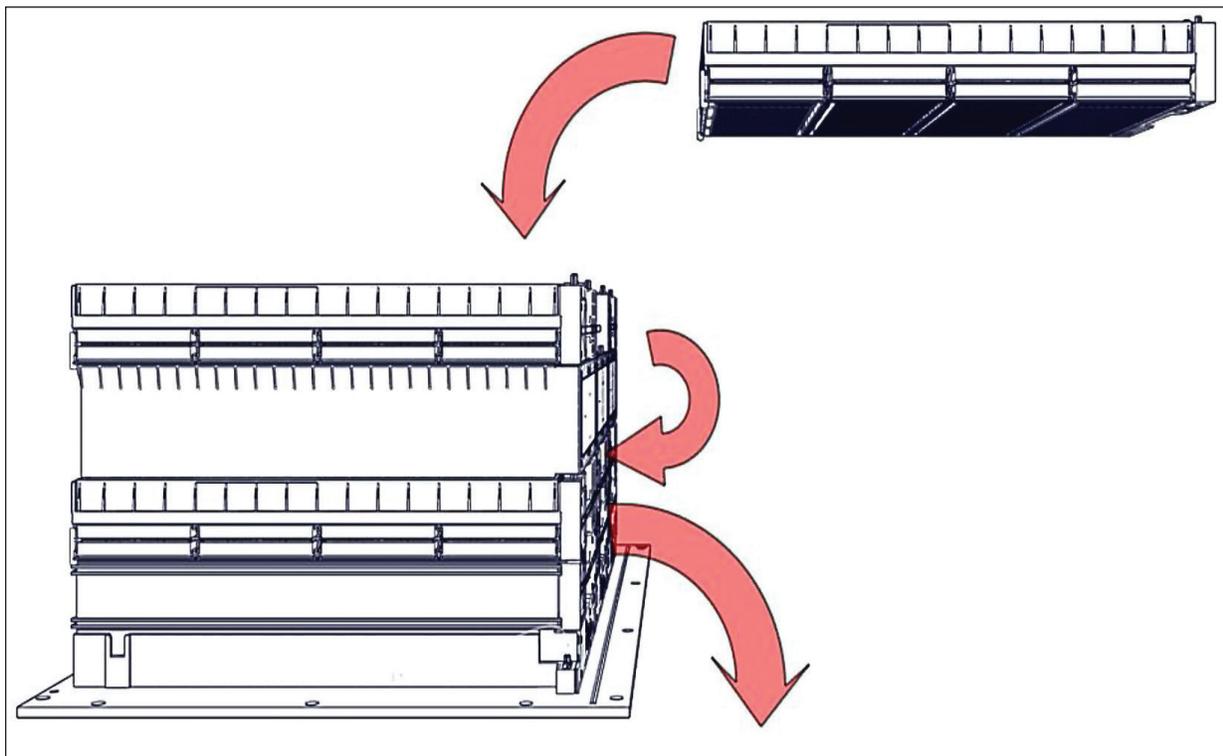
Replacing the Neutrodine Unisorb Filters

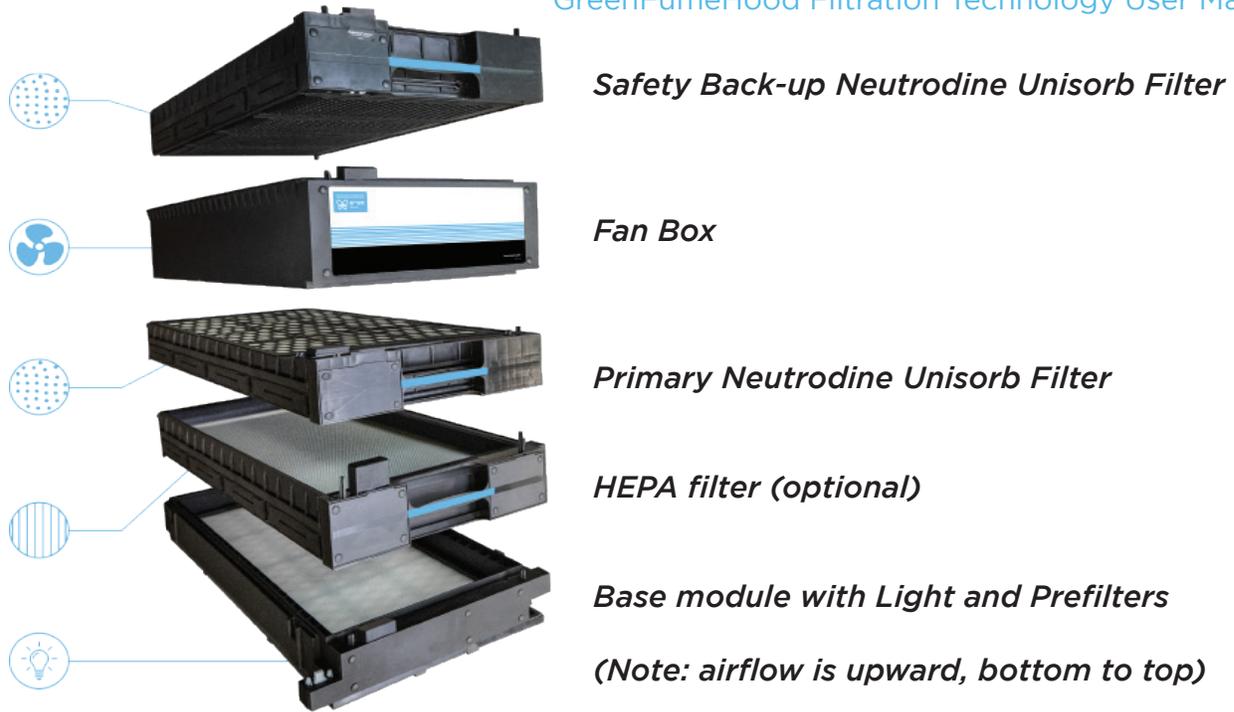
To protect the safety of GreenFumeHood users, the Neutrodine Unisorb Filters must be replaced each time one of the following conditions occurs:

- An embedded sensor (standard Molecode S, or optional Molecode A or F) detects the presence of chemicals between the primary filter stage and the backup filter stage. When this occurs, the filter replacement alarm is activated, and information about the alarm displays on the embedded web service.
- The Neutrodine Unisorb primary filters have been used for more than shown on the following table:

Hood Width	Maximum Filter Life
3 feet	30 months
4 feet	30 months
5 feet	36 months
6 feet	48 months
8 feet	48 months

When one of these conditions occur, the primary filters must be replaced. Thanks to Erlab's unique revolving system, the primary filters can be replaced by the backup filters, and the backup filters can be replaced by a new set of Neutrodine filters. In other words, only 50% of the filters need to be replaced.





0. First make sure it is safe to turn off the hood. Close all containers, Ensure all chemicals are stored properly.
1. Turn off the fans and lights, if needed, by pressing the on/off buttons for each on the Smart Command Module or simply pressing the main Power on/off button.
2. Unplug the GreenFumeHood power cord from the wall.
3. Remove the front access cover to view all filtration components. This will be different per hood structure manufacturer.
4. **Important:** Before removing any filters, make sure that the filter location label on each and every filter is completed correctly. Filters in the top position need to have the check box for “Safety filter” checked, filters in the bottom position need to have the check box for “Primary filter” checked. Once the filters are removed it is impossible to tell them apart visually unless these labels are completed. *Note: The optional HEPA filters do not have location labels.*
5. Unpack all of the new replacement filters. Set them aside and save the plastic bags and cardboard boxes they came in (for storing and transporting the used filters).
6. Remove the Safety Back-up filters and store them temporarily near the fume hood. Do NOT mix these Back-up filters with the Primary filters you are about to remove from the hood. To remove the filters and fans from the filtration column, grasp the handle at the front and lift up on the front a few inches to disconnect the power and communications electrical connector. When the front is clear of the connector and the alignment pins on both sides, pull and slide the filter or fan module toward you; it should glide upon the module below it. Once the filter or fan is mostly removed, lift up the entire module and carefully descend the ladder or pass the module to a helper on the ground. Repeat as needed for all filters and fans in these instructions.
7. Remove the fan modules, and store them temporarily near the fume hood.
8. Remove the primary Neutrodine filters. Immediately pack them and seal the package in the original plastic bags and cardboard boxes for the new replacement Neutrodine filters. Clearly mark “USED FILTERS” on the outside of the package. These filters must be sent to an appropriate waste disposal company.
9. If your application has the optional HEPA filters, remove them and the metal “junction frames” above them. Save the junction frames for reuse. Immediately pack the used HEPA filters in the plastic bags and cardboard boxes that the new replacement HEPA filters were shipped in. Clearly mark “USED FILTERS” on the outside of the package. These filters must be sent to an appropriate waste disposal company.

GreenFumeHood Filtration Technology User Manual

10. If your application has the optional HEPA filters, place the new HEPA filters on top of the base module. Then, place the saved metal junction frames on top of the new HEPA filters.
11. Place the original Safety Back-up filters, removed during step 6 above, into the Primary (lower) position. This is done by reversing the removal procedure: place the end of the filter on top of the front of the base module and push and slide the filter into position (while keeping the front of the filter lifted up a few inches). After you push the filter into position, gently lower the front of the filter to align it with the pins on both sides of the module, and connect the filter with the power and communications terminal. For multi-column hoods (4 feet and wider), it does not matter which position, left to right, the filters go in.
12. Set the fan modules on top.
 - a. If your application has either the optional Acid or the optional Formaldehyde sensor, the fan module that contains this additional sensor will be marked with an “A” or “F” sticker on the front. This fan module must be placed back in a specific location as shown in the table below. (All other fans can be placed in any of the remaining positions.)

Hood Width	Column 6	Column 5	Column 4	Column 3	Column 2	Column 1
3 feet	N/A	N/A	N/A	N/A	N/A	A or F
4 feet	N/A	N/A	N/A	N/A		A or F
5 feet	N/A	N/A	N/A		A or F	
6 feet	N/A	N/A			A or F	
8 feet	N/A			A or F		
10 feet				A or F		

- b. If your application has BOTH of the optional Acid and Formaldehyde sensors, the fan modules that contain these additional sensors will be marked with an “A” and an “F” sticker on the front. These specific fan modules must be placed back in a specific location as shown in the table below. (All other fans can be placed in any of the remaining positions).

Hood Width	Column 6	Column 5	Column 4	Column 3	Column 2	Column 1
3 feet	N/A	N/A	N/A	N/A	N/A	A or F only
4 feet	N/A	N/A	N/A	N/A	A	F
5 feet	N/A	N/A	N/A	F	A	
6 feet	N/A	N/A		A	F	
8 feet	N/A		A	F		
10 feet			A	F		

13. Place the new Neutrodine Unisorb filters in the Safety Back-up (top) position. For multi-column hoods (4 feet and wider) it does not matter which position, left to right, the new filters go in.
14. Plug in the GreenFumeHood power cord. Wait for the hood to reboot and play the jingle. This should take approximately 30 seconds.
15. After the start-up jingle plays, press the power button to turn-on the fans and lights, and verify that the fume hood is working correctly.
16. There will be a maintenance alert (maintenance icon turns red and beep sounds). If this is a successful filter change, pressing the mute button once will clear the alert and the hood will operate correctly.
17. If there is another alarm, turn off and unplug the GreenFumeHood, and verify that all of the modules and filters are connected correctly.
18. Plug the power back in and restart the GreenFumeHood. If the alarm returns, see the Trouble shooting section for next steps or if it persists call Erlab tech support 800-964-4434.

Notes:

- Dispose the used Neutrodine Unisorb filters in accordance with the appropriate governmental regulations for your location.
- All primary filters must be replaced at the same time.

Alarms and Troubleshooting

In the table below, the priority level starts at 1 for “high priority” and ends at 6 for “low priority.”

Alarm	Priority	Possible causes and corrective actions
Face velocity 	1	Low face velocity. <ul style="list-style-type: none"> • The sash is raised too high. Lower the sash slowly until the alarm stops. • The prefilters are very dirty and need replacing. • There is excess leakage or bypass air flowing into the hood.
	1	The anemometer is out of order (malfunctioning, not working at all, or another type of error). Re-boot the hood by cycling power. Recalibrate the anemometer (see Maintenance section above)
Filter replacement 	2	Volatile organic compound (VOC) detected: Replace the primary filter(s) now.
	2	Acid detected: Replace the primary filter(s) now.
	2	Formaldehyde detected: Replace the primary filter(s) now.
	2	Replace the primary filter(s).
	2	Replace the HEPA or ULPA filter(s).
Fans 	3	Fan speed control default.
	3	Fan failure.
Maintenance 	1	The <Cx> primary filter(s) are missing. Power down the hood and double-check that all electrical connections between the Primary filters and the modules above and below them in each column are seated fully.
	1	The <Cx> back-up filter(s) are missing. Power down the hood and double-check that all electrical connections between the Back-up filters and the modules above and below them in each column are seated fully.
	1	The fan module(s) <Cx> are missing. Power down the hood and double-check that all electrical connections between the fans and the filters above and below them in each column are seated fully.
	1	The device is missing one or more base module(s). Power down the hood and double-check that all electrical connections from the base module to the base module are seated fully.
	1	The anemometer is missing. <ul style="list-style-type: none"> • Power down the hood and double-check the electrical connections between the anemometer module and the power supply box. • Replace the sensor.
	1	Internal temperature alarm > 60° C (> 140° F). Stop heating operations immediately and allow the hood to cool off. Restart the hood and limit the amount of heat generated inside the hood.
	2	Internal relative humidity > 80%. The humidity is too high for safe molecular adsorption. Stop using the hood and lower the relative humidity (RH) in the lab.
	3	The VOC sensor is missing. <ul style="list-style-type: none"> • Power down the hood and double-check that all electrical connections between all fans and the filters above and below them in each column are seated fully. • Remove the fan covers and double-check all electrical connections inside. • Replace the sensor.
	3	VOC detector failure. <ul style="list-style-type: none"> • Power down the hood and double-check that all electrical connections between all fans and the filters above and below them in each column are seated fully. • Remove the fan covers and double-check all electrical connections inside. • Replace the sensor.

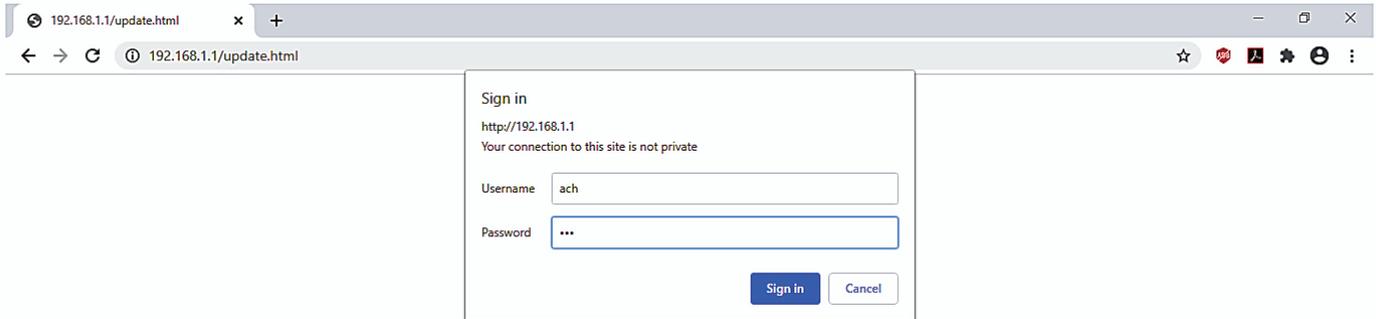
Alarms and Troubleshooting (continued)

In the table below, the priority level starts at 1 for “high priority” and ends at 6 for “low priority.”

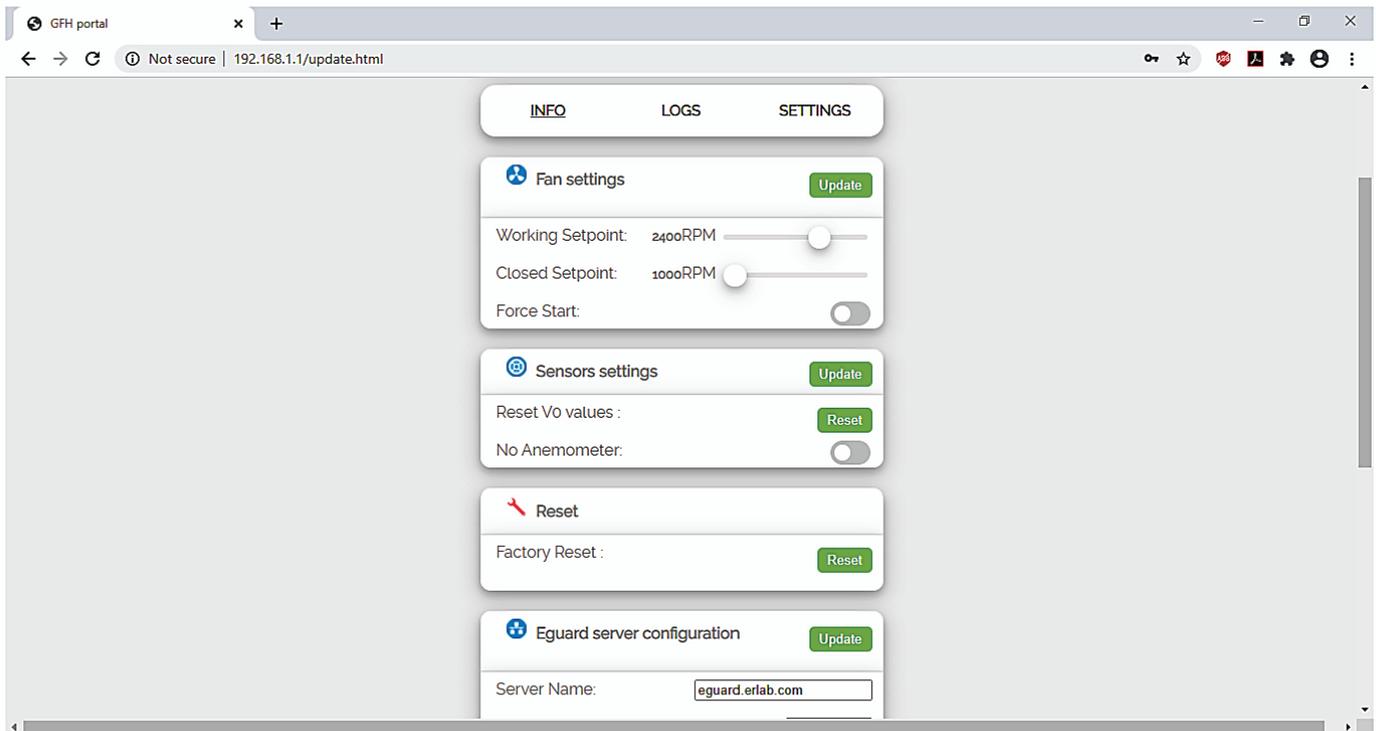
Maintenance (cont.) 	3	Acid detector failure. <ul style="list-style-type: none"> Power down the hood and double-check that all electrical connections between the fan with an “A” sticker and the filters above and below it are seated fully. Remove the “A” fan cover and double-check all electrical connections inside. Replace the sensor.
	3	Formaldehyde detector failure. <ul style="list-style-type: none"> Power down the hood and double-check that all electrical connections between the fan with an “F” sticker and the filters above and below it are seated fully. Remove the “A” fan cover and double-check all electrical connections inside. Replace the sensor.
	3	RH sensor failure.
	3	Temperature sensor failure.
	3	The RH/temperature sensor is missing. <ul style="list-style-type: none"> Power down the hood and double-check that all electrical connections from base module to the base module are seated fully. Replace the sensor.
	4	Internal relative humidity < 20%. Use caution at low humidity when handling powders.
	4	Internal temperature < 5° C (< 41° F).
	4	Internal temperature alert > 40° C (> 104° F). Use caution. Reduce the heat generation, if possible.
	5	Replace the VOC sensor.
	5	Replace the acid sensor.
	5	Replace the formaldehyde sensor.
	5	Replace the relative humidity/temperature sensor.
	5	Replace the anemometer.
	6	The <Name of sensor> sensor was replaced on <date> (in MM/DD/YY format).
	6	The primary filter(s), secondary filter(s), and/or HEPA filter(s) were replaced on <date> (in MM/DD/YY format).
	6	The number of installed filtration columns is different from the initial configuration. Power down the hood and double-check that all electrical connections between all filters and fans and the modules above and below them in each column are seated fully.
6	The number of installed filters is different from the initial configuration. Power down the hood and double-check that all electrical connections between all filters and fans and the modules above and below them in each column are seated fully.	

Sample Screens

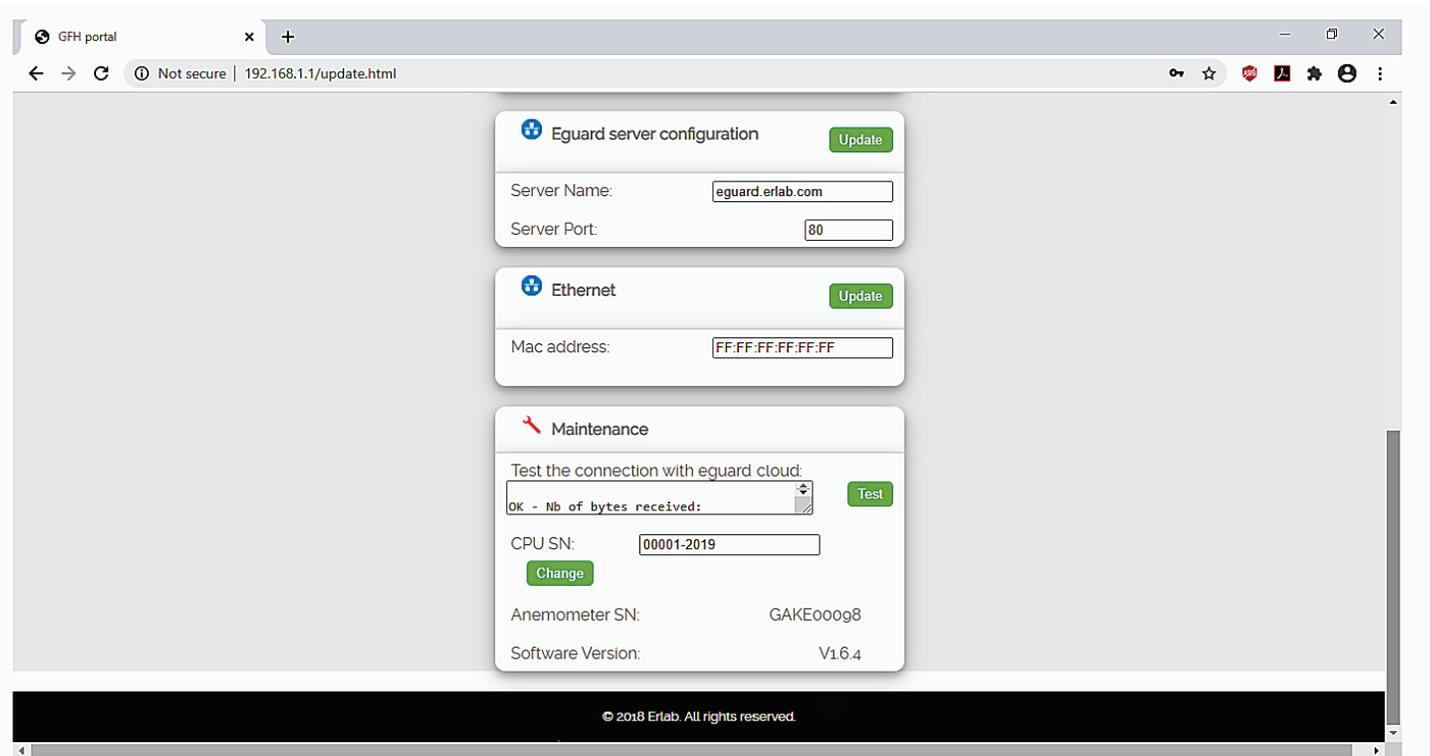
Update web page log-in screen (Enter **ach** for the username and password)



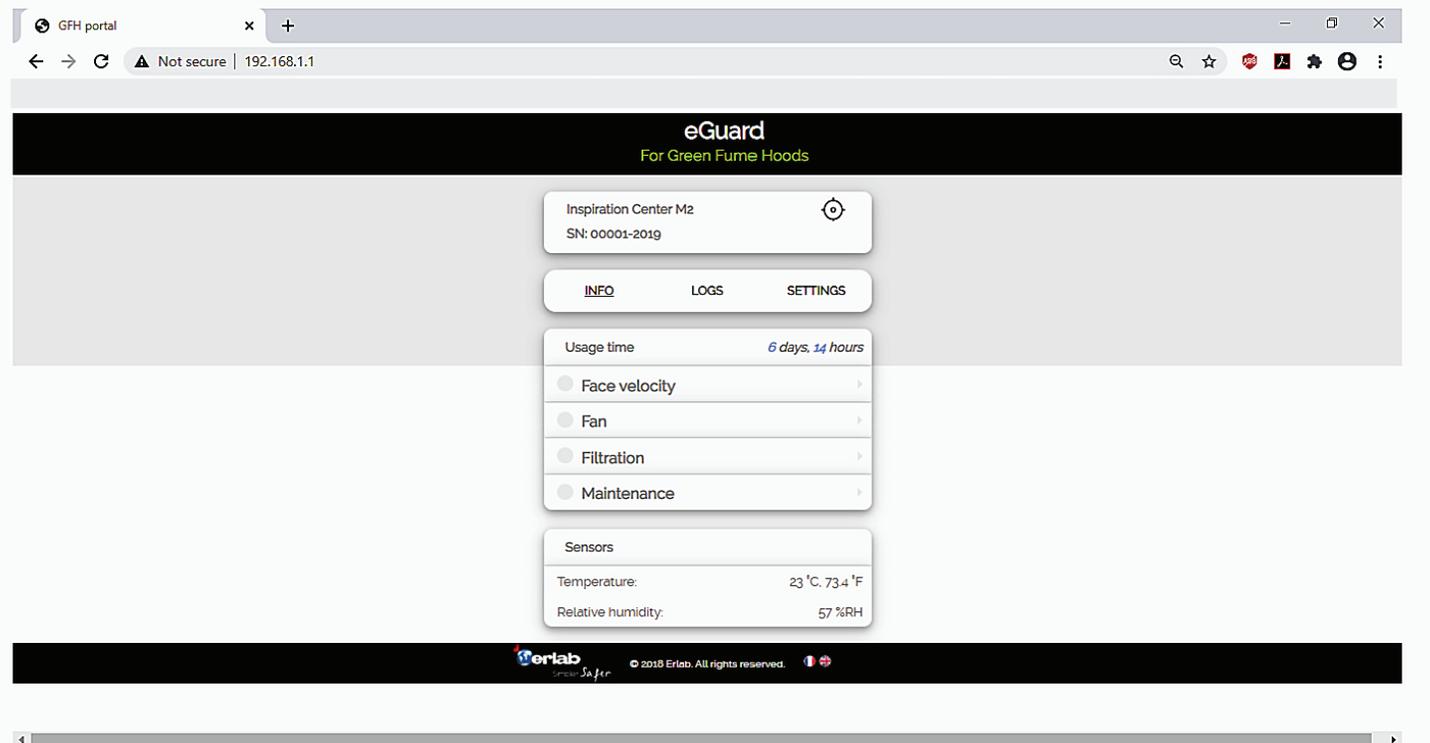
Main Update web page after log in, top half



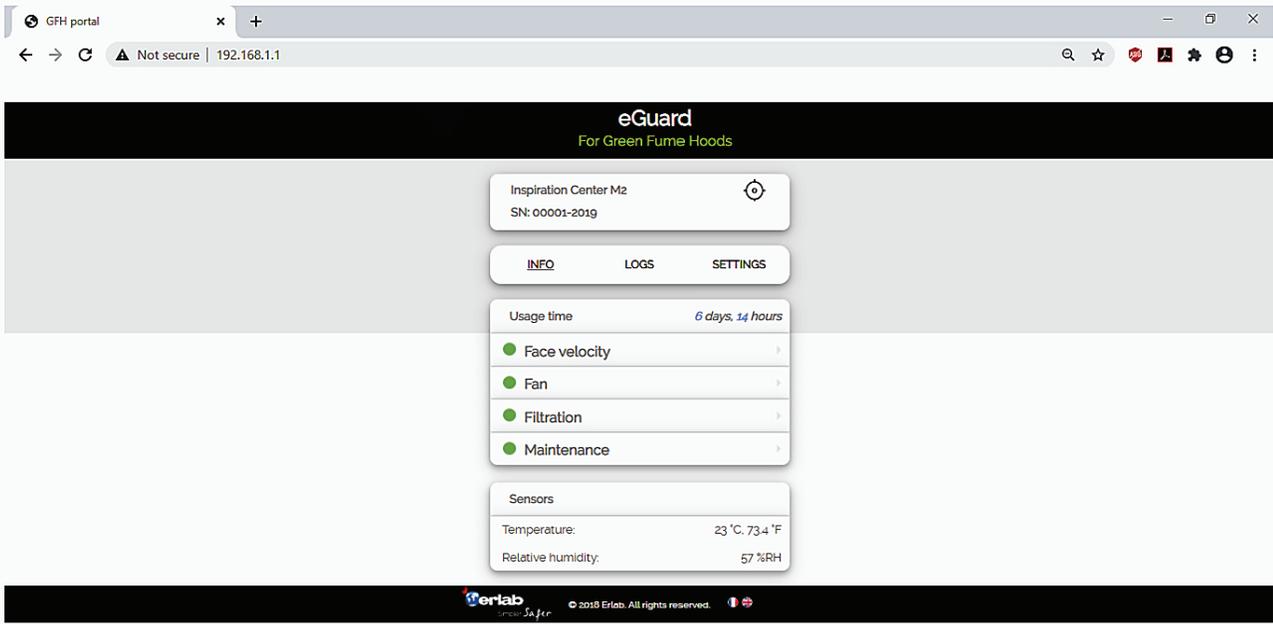
Main Update web page after log in, bottom half



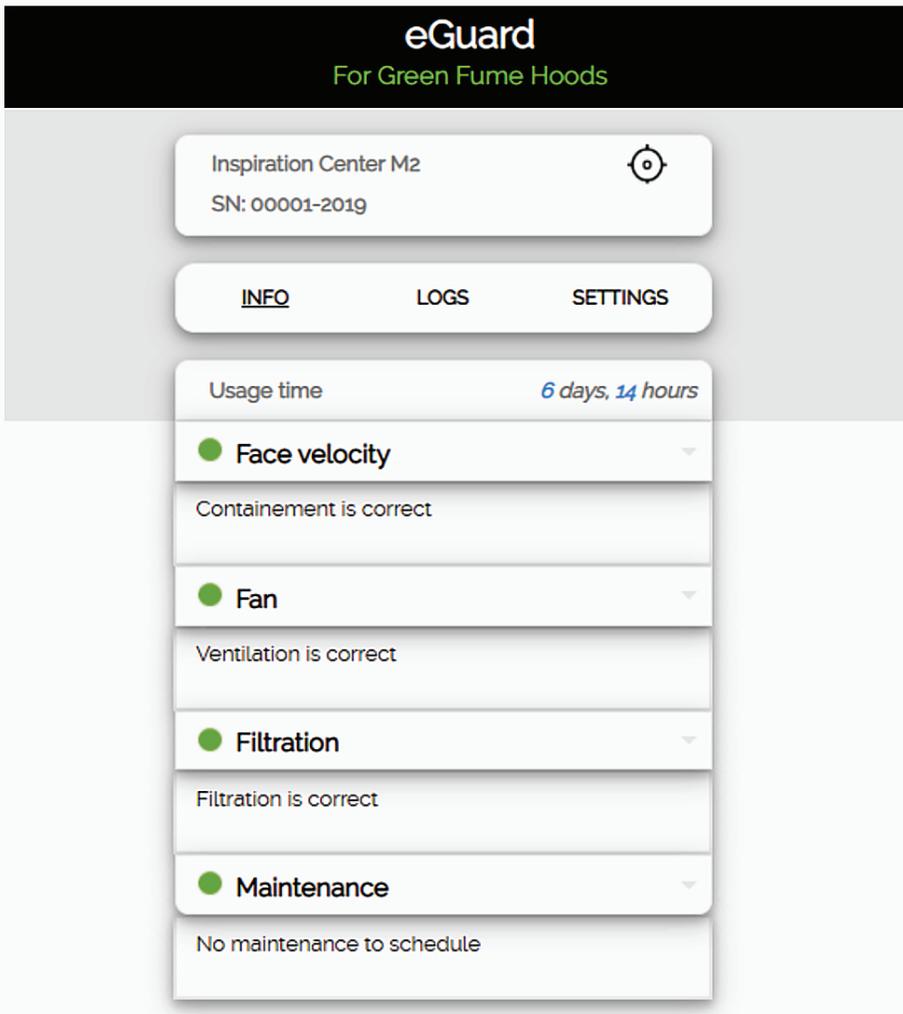
eGuard web page (via Wi-Fi) with the hood not running



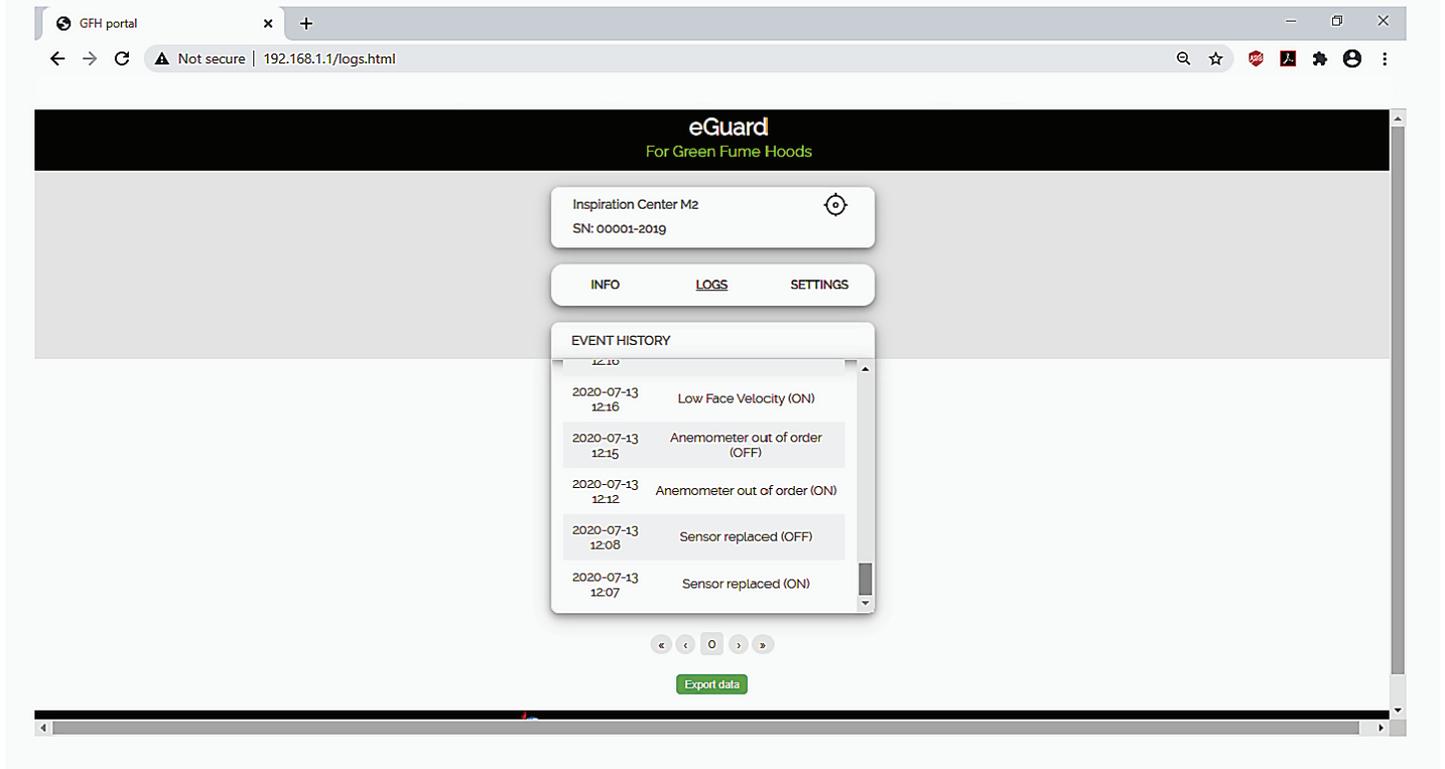
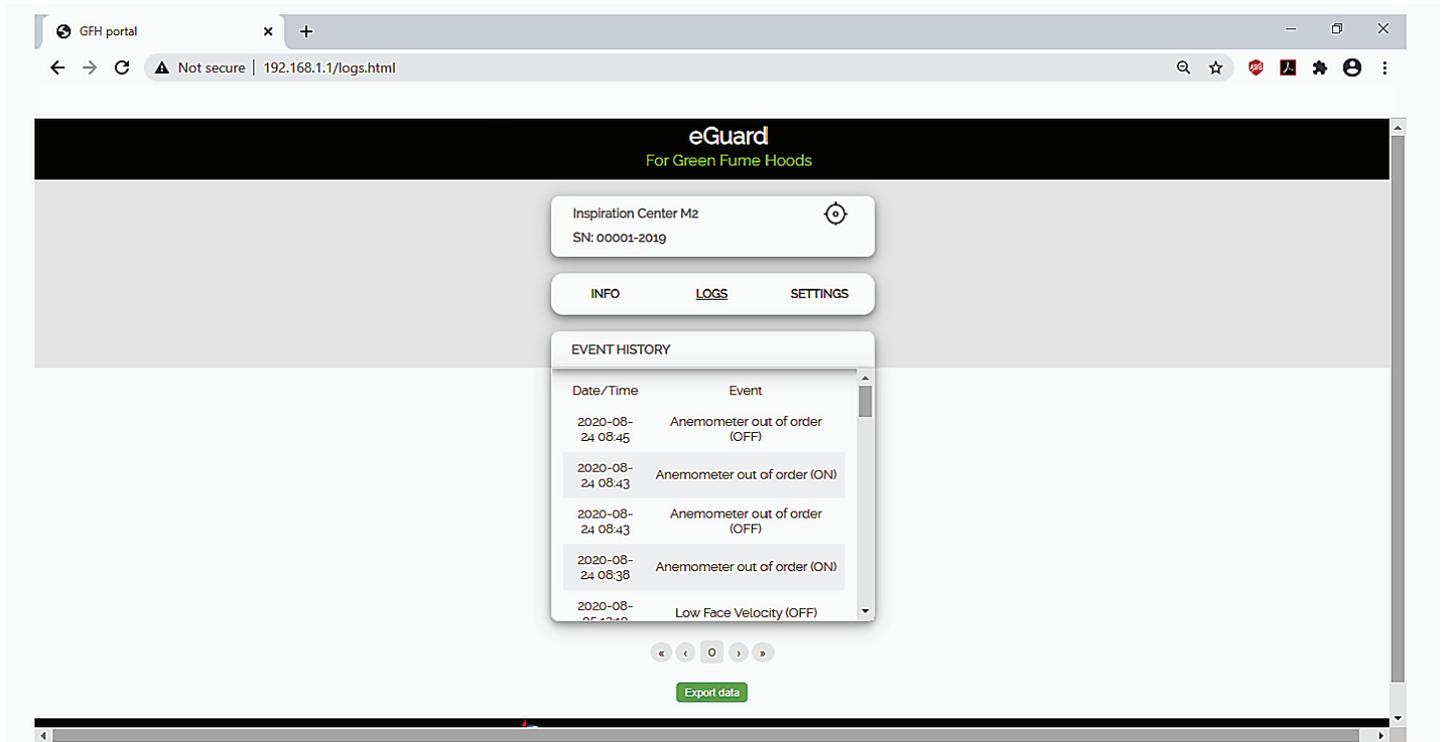
eGuard web page (via Wi-Fi) with the hood running



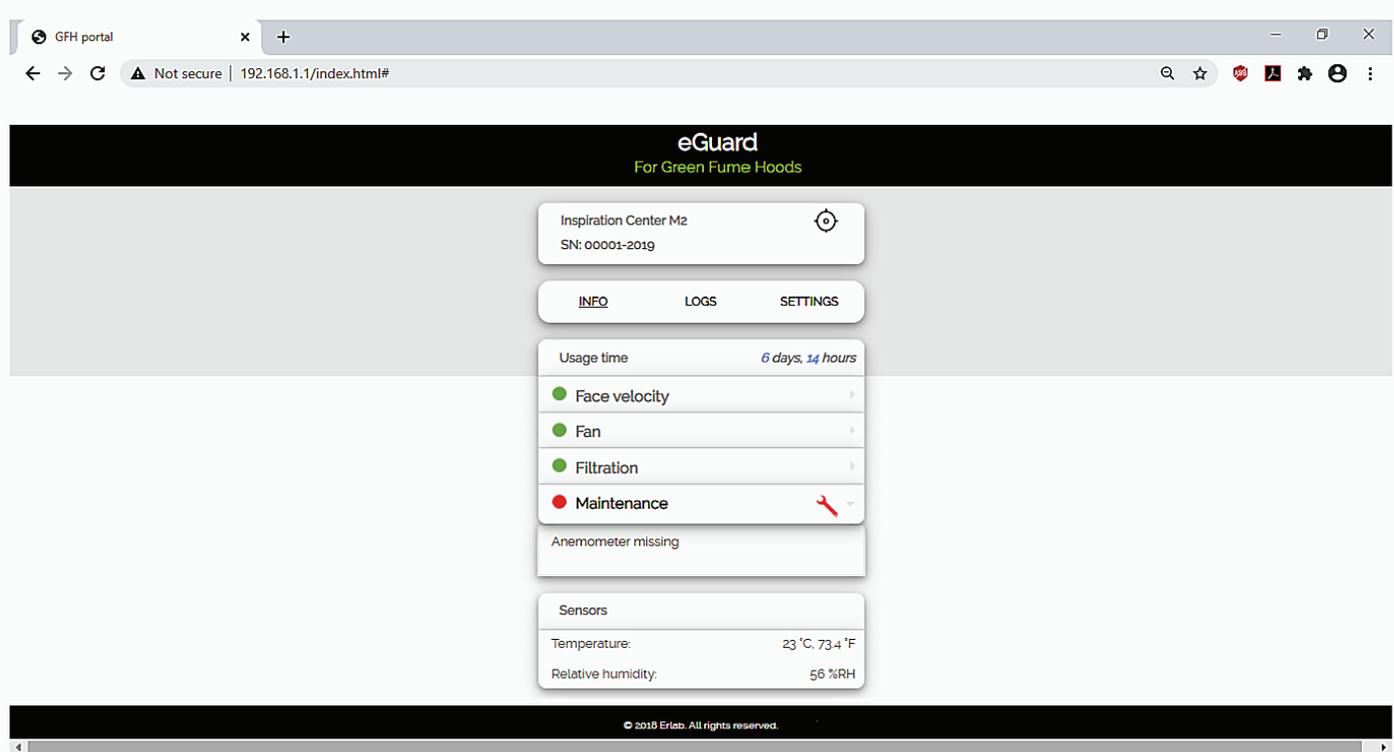
Expanded each section (no alarms)



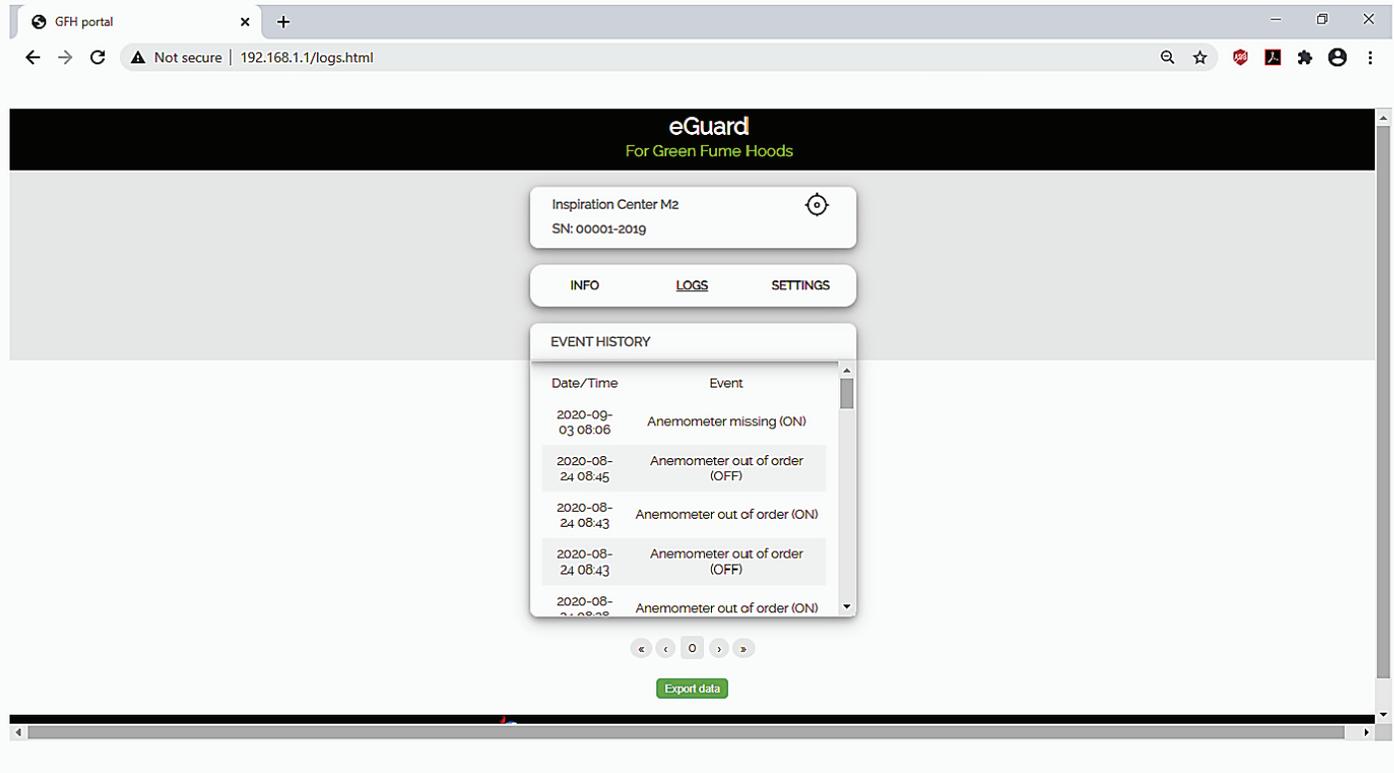
Sample log pages (Each hood will be different)



Sample anemometer unplugged error message



The resulting “Anemometer Missing” event in the logs





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