Captair 321-391-481 Smart
Ductless filtering fume hoods
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General

By choosing Captair Smart ductless filtration fume hoods, you have chosen an efficient and responsible way to ensure safety.

Erlab’s 45 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 Captair Smart range uses an innovative and straightforward mode of communication called Smart technology. This powerful interface uses light to intuitively and effortlessly communicate with users and leave them free to focus all their attention on the main task: handling the chemicals.

Your ductless Captair Smart filtration fume hood guarantees that you are protected when working with chemicals that pose an inhalation risk. The Erlab filtration technology it employs traps hazardous particles and molecules and returns clean air back into the laboratory.

The system’s connectivity allows for real-time safety alerts and individual device usage reports to be sent via the e-Guard App.

Safety notices

The effectiveness of your device is directly dependent upon it being used correctly and monitored by its users. Your laboratory may also benefit from ergonomic, economic and ecological advantages provided by the Captair Smart fume hood throughout its life cycle.

The E.S.P. program (Erlab Safety Program) was set up to guarantee your safety. We would remind you that it is important to have the safety parameters validated before using the device for the first time and whenever it is used for a different application.

The handling of substances that are carcinogenic, mutagenic or toxic for reproduction (CMRs) underneath a fume hood is covered by the French Labour Code. The code notably specifies that an in-depth risk analysis must be carried out prior to any CMRs being handled under a recirculating fume hood.

The equipment provided is not intended to be used in an explosive atmosphere.

The filters delivered with this device must be removed from their packaging and positioned correctly; they must also be suitable for the type of chemicals being handled in order to guarantee user safety.

Erlab recommends that filter breakthrough tests are regularly carried out.

Erlab recommends that the 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).

AFNOR standard NF X 15-211: 2009 only applies to chemicals subject to an OEL.

Pursuant to the NF X 15-211 standard, only operations that can immediately be stopped are allowed to be carried out in a Class 2 enclosure. Moreover, the fume hood’s filter must be replaced if any chemicals are detected downstream of the filter.

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 which is specific to the device and shows the chemical agents handled, how often they are used and the maintenance operations carried out on it.
Extend your warranty to up to 10 years

To benefit from the warranties offered by Erlab, you must register your product online. (www.erlab.com)

Registering your product online automatically adds another year to your warranty (over and above the statutory warranty).

Once the device has been connected to the Internet and configured to exchange usage data, the device’s guarantee can be renewed annually up to a maximum of 10 years from the date it was commissioned.

The filters, detection sensors and other electronic components are not governed by these conditions.

The filter should either be changed within the time set out in the analysis of your application via the Valiquest service or, where applicable, at the end of the filter service life.

It is the filter’s serial number which serves as the identifier that validates this condition, irrespective of device supplier (and/or the replacement filter supplier in subsequent years).

The device’s replacement filter must be manufactured by Erlab, as must all other spare parts.

Connectivity principle

Ecosystem designed for simpler use and safer protection
## eGuard App

### Options of connection

- **Embedded service**

- **Mobile or computer App**

### 3 Versions

<table>
<thead>
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<th>Conditions of use</th>
<th>Embedded service</th>
<th>Mobile App</th>
<th>PC App</th>
</tr>
</thead>
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<tr>
<td>Hardware requirements</td>
<td>Direct connection on PC with data cable (RJ45)</td>
<td>Web connection (via 3G/4G)</td>
<td>Web and/or local connection</td>
</tr>
<tr>
<td>1 PC + 1 cable</td>
<td>1 Apple or Android Smartphone</td>
<td>1 PC connected to Internet or local network</td>
<td></td>
</tr>
<tr>
<td>Parameters</td>
<td>Monitoring + Controlling</td>
<td>Monitoring</td>
<td>Monitoring + Controlling</td>
</tr>
<tr>
<td>Data access</td>
<td>One unit</td>
<td>Multiple units</td>
<td>Multiple units</td>
</tr>
<tr>
<td>Historical data access</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Historical data download</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Alerts</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Multiple units monitoring</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Multiple user accounts</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Automatised status report</td>
<td>✔</td>
<td>✔</td>
<td>✔ (except if local connection)</td>
</tr>
<tr>
<td>Download</td>
<td><img src="image" alt="iOS App Store" /></td>
<td><img src="image" alt="Android Play Store" /></td>
<td><img src="image" alt="Windows App Store" /></td>
</tr>
</tbody>
</table>

Available on [erlab.com](http://erlab.com)
Acces to embedded

Direct connection on computer with data cable (Ethernet RJ45)

Type IP into the address bar

Modify network card parameters

1 2

Right click / Open network and sharing center
Start-up

Having carefully followed the steps described in the installation guide, your Captair Smart fume hood is now ready to use.

The power switch is located at the back of the control panel.

Note: we recommend never turning off the main device power switch after the machine has been started for the first time.

The button on the control panel turns on the fan and the lights.

The green indicator light and LED light system should come on.

We also recommend verifying the operating parameters before each new use.
Default device settings (to be checked and/or changed in the order set out below)

<table>
<thead>
<tr>
<th>Function</th>
<th>Settings</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan</td>
<td>Setpoint: 2000 RPM</td>
<td>Adjust the fan setpoint to suit the filtration column type. See fan setpoints</td>
</tr>
<tr>
<td>Timer</td>
<td>Disabled</td>
<td>Set at 60 hours pursuant to standard NFX 15 211</td>
</tr>
<tr>
<td>Date filter was installed</td>
<td>N/A</td>
<td>See filter service life. See recommendations for storing and using the filters</td>
</tr>
<tr>
<td>Molecode option setting (S/A/F)</td>
<td>Medium</td>
<td>Set according to your Valipass label. See ESP Program.</td>
</tr>
<tr>
<td>Anemometer calibration</td>
<td>To be checked</td>
<td>Min. air face velocity of 0.4m/s. See procedure to calibrate the anemometer</td>
</tr>
</tbody>
</table>

Accessing the Administrator Interface
Use the administrator interface to access or change the device parameters. Follow these steps:

1. Use the RJ45 cable provided to connect the device to a PC.
2. Plug the RJ45 cable into the socket located on the back of the fume hood control panel.
3. Check that the IPV4 range used is compatible with your device.
4. Enter the IP address into your web browser to access the embedded administrator interface.

Default IP address

<table>
<thead>
<tr>
<th>IP : 192.168.0.200</th>
</tr>
</thead>
</table>

If the network settings are changed, copy the new IP address here:
Status page details

1. Choose language
2. Choose active interface page
3. Device ID: Model, serial number, MAC address, device status
4. Device alarm statuses (see alarm triggering conditions)
5. Molecode Option Gauge: indicates the saturation level of the main carbon filter(s) and type of sensor
6. Fan Gauge: indicates the fan status, number of revolutions per minute in real time and the fan setpoint
7. Air Face Velocity: indicates the air face velocity
8. Device use time since fan was last started
9. Device network settings
Log page details

1. Displays the device’s events log
2. Used for downloading the log in .csv format
Access to the settings is protected by the following credentials:

User name: erlab
Password: smart

<table>
<thead>
<tr>
<th>Settings page details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Device time and date settings</td>
</tr>
<tr>
<td>2 Molecule S/A/F option sensitivity settings (automatic carbon filter saturation detector)</td>
</tr>
<tr>
<td>3 Device fan setpoint settings</td>
</tr>
<tr>
<td>4 Alarm volume settings</td>
</tr>
</tbody>
</table>
Enable/disable Timer (device use time countdown to filter efficiency test). Set to 60 hours pursuant to the AFNOR NF X 15211 standard

Device network settings
Mode: Selected IP protocol
Hostname: Device name on network
IP: IP address of the device
MASK: network mask
GW: Network gateway

Electronic Anemometer settings:
See procedure for calibrating the electronic anemometer

Filter change:
Counter showing the number of days the filter(s) can be used relative to its/their service life expiry date
- Enter the replacement date of the filter(s)
- Enable/Disable the filter end of service life date alarm
- Confirm

Molecode S/A/F option replacement:
(automatic carbon filter saturation detector)
- Enter sensor replacement date
- Confirm

Confirm settings key
Cancel settings key
Reset settings key (default settings)
Active/Unactive the exchange of datas
Allow to send out datas from the device to the eGuard servor for:
- remote monitoring via eGuard App (mobile & PC)
- usage reports reception

Fan setpoints per filtration column type

<table>
<thead>
<tr>
<th>Unit / Type of filtration column</th>
<th>1P</th>
<th>1C</th>
<th>1C1P</th>
<th>1P1C</th>
<th>1P1C1P</th>
<th>1P2C</th>
<th>2C1P</th>
<th>2C</th>
</tr>
</thead>
<tbody>
<tr>
<td>321</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>391</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>481</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>392</td>
<td>1800</td>
<td>2300</td>
<td>2350</td>
<td>2650</td>
<td>2700</td>
<td>2800</td>
<td>2400</td>
<td></td>
</tr>
<tr>
<td>483</td>
<td>2000</td>
<td>2300</td>
<td>2350</td>
<td>2650</td>
<td>2700</td>
<td>2800</td>
<td>2400</td>
<td></td>
</tr>
<tr>
<td>633</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>714</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Procedure for calibrating the electronic anemometer

Upon first start-up
1- Switch on the fume hood fan. Leave the fan running for approximately 10 minutes so that the anemometer can reach optimum operating temperature.

2- Go into the administrator interface (see accessing the administrator interface)

3- Check the air face velocity on the corresponding gauge; if the needle is in the blue zone, the anemometer is correctly calibrated.

Annual checking procedure
1- Switch on the fume hood fan. Leave the fan running for approximately 10 minutes so that the anemometer can reach optimum operating temperature.

2- Go into the administrator interface (see accessing the administrator interface)

3- Measure the air face velocity with an anemometer

4- Bring up the settings page and enter the user name and password to access the settings (see accessing the administrator interface)

5- Enter the reading in the corresponding box

6- Click on confirm or restart

7 - Bring up the Status page in the administrator interface, then confirm that the needle is in the gauge’s blue zone.

8 - Exit the administrator interface

9 - Repeat this process once a year.

If the needle is outside the blue zone on the gauge:
1- Go into the device’s administrator interface (see accessing the administrator interface)

2- Bring up the settings page and enter the user name and password to access the settings (see accessing the administrator interface)

3- Enter a value of 0.45 m/s in the corresponding box

4- Click on confirm or restart
Description of the control module

![Control Module Diagram]

1 - Switch on fan and lights in hood
2 - Silence the alarm
3 - Keycode to indicate which alarm is active
4 - Smart-Lights that pulses when in alarm
5 - Pegs to hold the sash fully open

The power of Smart technology

A single, easy-to-use button provides centralised control of ventilation, lighting and onboard intelligence.

The fixed light bar shows the optimal level of protection the operator is afforded.

The hood communicates its operational state in real time through a series of sound and light pulses.

Alarms description

<table>
<thead>
<tr>
<th>Alarm type</th>
<th>Light signal</th>
<th>Events</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timer</td>
<td>1 beep 5 seconds apart</td>
<td>Pulses</td>
<td>Operating time elapsed timer (60 hours according to the NFX 15-211 standard)</td>
</tr>
<tr>
<td>Air speed</td>
<td>2 beeps 5 seconds apart</td>
<td>Pulses</td>
<td>Low air speed</td>
</tr>
<tr>
<td>Filtration</td>
<td>3 beeps 5 seconds apart</td>
<td>Pulses</td>
<td>Filter breakthrough (Molecode S/A/F option)</td>
</tr>
<tr>
<td>Fan</td>
<td>4 beeps 5 seconds apart</td>
<td>Pulses</td>
<td>Fan fault</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fan Unserviceable</td>
</tr>
</tbody>
</table>
Replacing the filters

Your device is equipped with FLEX™ filter technology that was configured to the user’s protection needs when the device was purchased. The configuration of the filter column is dependent on the applications carried out in the enclosure. These applications may change over time. Your FLEX™ filter technology can therefore be reconfigured if your fume hood is used for applications other than those anticipated when the device is first set up. If so, please contact us so that we can verify that the current configuration is safe or it needs to be configured.

The table below summarises all possible Flex™ filter technology configurations for your device.

<table>
<thead>
<tr>
<th>Column Configuration</th>
<th>Molecular filter</th>
<th>HEPA filter H14</th>
<th>Pre-filter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C</td>
<td>x1</td>
<td></td>
<td>x1</td>
</tr>
<tr>
<td>2C</td>
<td>x2</td>
<td></td>
<td>x1</td>
</tr>
<tr>
<td>1P</td>
<td>x1</td>
<td>x1</td>
<td>x1</td>
</tr>
<tr>
<td>2P</td>
<td>x2</td>
<td></td>
<td>x1</td>
</tr>
<tr>
<td>1P 1C</td>
<td>x1</td>
<td>x1</td>
<td>x1</td>
</tr>
<tr>
<td>1P 2C</td>
<td>x2</td>
<td></td>
<td>x1</td>
</tr>
<tr>
<td>1C 1P</td>
<td>x1</td>
<td>x1</td>
<td>x1</td>
</tr>
<tr>
<td>2C 1P</td>
<td>x2</td>
<td></td>
<td>x1</td>
</tr>
<tr>
<td>1P 1C 1P</td>
<td>x1</td>
<td>x2</td>
<td>x1</td>
</tr>
</tbody>
</table>

The table below summarises the different types of carbon filters that Erlab® offers along with their fields of application.

<table>
<thead>
<tr>
<th>Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type AS</td>
<td>For organic vapors</td>
</tr>
<tr>
<td>Type BE+</td>
<td>Multi-application for acid and organic vapors</td>
</tr>
<tr>
<td>Type K</td>
<td>For ammonia vapors</td>
</tr>
<tr>
<td>Type F</td>
<td>For formaldehyde vapors</td>
</tr>
<tr>
<td>HEPA H14</td>
<td>For powders</td>
</tr>
<tr>
<td>ULPA U17</td>
<td>For powders</td>
</tr>
</tbody>
</table>
Replacing the HEPA H14 / ULPA U17 filters

Pre-requisites

• The operative responsible for replacing the filter is kept up-to-date with the exhaustive list of products handled in the fume hood by the user so that the correct EPI can be used
• The laboratory is empty when the operation is carried out
• The laboratory is ventilated by mechanical or natural means while the operation is carried out

Minimum protective equipment

• One-piece overall + overshoes + bouffant cap
• Laboratory gloves (latex or nitrile)
• Protective glasses
• Breathing mask with particle filter (P3)

This procedure is applicable to HEPA/ULPA filters located at the bottom of the filtration columns and designed to trap powders handled inside the device enclosure.

Strict chronological order to follow:

1- Switch on the device fan
2- Carefully spray the bottom surface of the HEPA/ULPA filter (paint with NON FLAMMABLE propellent), to be done inside the enclosure
3- Allow at least 5 minutes with the fan running for the spray to dry
4- Shut down and unplug the device and disconnect the fan module power supply cable and the sampling tubes from the sampling area (if installed)
5- Carefully remove the molecular filter(s) (if present) and the fan module
6- Carefully unwrap the new HEPA/ULPA filter
   Keep the plastic film and cardboard box so that you can use it later to pack up the used filter
   Lay out the film on a flat surface in the immediate vicinity of the operation so that it is at the ready
7- Carefully remove the used HEPA/ULPA filter and immediately place it contaminated-side down onto the plastic film
8- Clean the filter housing and the enclosure (using water + surfactant)
9- Package up the used filter + contaminated equipment
   Seal the plastic film tightly
10- Place the sealed package in the box the new carbon filter came in, then seal it using adhesive tape

Have the filter disposed of via a suitable disposal process in accordance with the applicable regulations.

To find out more, please contact your usual advisor.

11- Fit the new HEPA/ULPA filter, main molecular filter (if present) and the fan module, followed by the backup molecular filter (if present). Make sure that all the column components
12- Reconnect the device’s various cables and hoses, switch the device back on and check the air speed using the anemometer calibration procedure via the administrator interface
Filter Replacement Procedure

For these operations, we strongly recommended that the user or maintenance technician wear the necessary safety equipment, including: safety glasses, lab coat and gloves.

Switch off the fume hood

Remove the two protective shields on either side of the hood

Disconnect the power supply to the fan hood followed by the fan module hose (if the device is fitted with a type A or F Molecule)
1. Identify which column configuration below applies to your hood. (See your Velipass label)

2. Unstack the filtration column(s) above the fume hood.

3. After carefully removing the filters from their packaging, assemble the column per the configuration below.

4. If your column configuration changed, apply the correct fan setpoint for the filtration column configuration (see fan setpoints)

![Column Configurations]

1C

2C

1P

2P

1P1C

1P2C

1P1C1P

2C1P
When reassembling the filtration column, be sure that the fan module is positioned correctly to access your connection points.

Reconnect the power supply to the fan hood and the hose to the sampling ports.
(If the device is fitted with a type A or F Molecode)
Recommendations for storing and using the filters

New filter shelf life and storage conditions:
New activated carbon molecular filters must be stored flat in their original packaging at a temperature of between +10°C / 50°F and +50°C / 120°F and a humidity level < 85% RH.

If these conditions are adhered to, the maximum time a filter can be stored before use depends on the type of carbon used:

<table>
<thead>
<tr>
<th>Filter Type</th>
<th>Maximum Shelflife</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS type carbon molecular filter</td>
<td>2 years from the date of delivery</td>
</tr>
<tr>
<td>BE+ type carbon molecular filter</td>
<td>2 years from the date of delivery</td>
</tr>
<tr>
<td>BE type carbon molecular filter</td>
<td>1 year from the date of delivery</td>
</tr>
<tr>
<td>F type carbon molecular filter</td>
<td>1 year from the date of delivery</td>
</tr>
<tr>
<td>K type carbon molecular filter</td>
<td>1 year from the date of delivery</td>
</tr>
</tbody>
</table>

If the maximum shelflife is reached, we recommend to not install filters.

- HEPA H14 and/or ULPA U17 filters must be stored upright and kept dry; there is no limit to the time they can be stored.

Predicted service life of a filter once put into use:
The service life of a molecular filter depends on the operations carried out in the ductless fume hood as well as the conditions of the environment in which it is used.

We recommend replacing the filter annually (if used 24/7).

ERLAB offers 3-point validation of your handling operations based on a scientific analysis carried out by its laboratory specialists via the global Erlab Safety Program (E.S.P) which includes the Valiquest questionnaire:

- Feasibility of handling operations under a recirculating fume hood
- Type(s) of filter(s) to use and filtration column configuration
- Predicted service life of the activated carbon molecular filters

How does the E.S.P service work?
- The customer completes the Valiquest questionnaire and sends it by email to Erlab
- The Erlab laboratory specialists analyze the questionnaire and issue a Valipass certificate

The Valipass certificate is affixed to the new devices at the factory. If the chemical processes in the hood change, a new valiquest is completed and is sent by email after revalidation.

The certificate contains the following: the list of products handled in the hood, the filter type required for these chemicals, serial number, filter life time, the traceability information used to track how the device is used and the molecular filter saturation detection methods.

The activated carbon molecular filter(s) must be replaced when the period in months specified on the Valipass certificate expires

To ensure their safety, we invite users who have not had their application validated via the VALIQUEST questionnaire or whose device is not covered by a VALIPASS usage certificate, to contact ERLAB or their usual distributor to arrange a new usage validation for the device in question.

Failing that and/or in the absence of information regarding device usage:
ERLAB is unable to provide any guidance as to the predicted service life of the filter(s).

In such cases, we strongly recommend:
- That the molecular filters are replaced at least every 12 months and that a regular filter saturation checking protocol is put in place (please contact us for individual advice on this subject)
- That the HEPA or ULPA particulate filters are replaced at least every 36 months
Cleaning and maintenance

**Mechanical item checks**

**Hinges:**
Hinges must be properly attached and must allow any items on the front side of the hood to be instantly and easily lifted upward.

**Acrylic Parts:**
These parts must be clean; white streaks or spatters indicate rather heavy use of acid (hydrochloric acid) or products handled at a high temperature. Ensuring the transparency of the walls is a part of regular maintenance for the enclosure.

**Cleaning the enclosure**

**The enclosure must be cleaned on a regular basis.**

This may be accomplished in several ways:

- With soapy water followed by rinsing with clear water and drying with a soft, non-abrasive absorbent paper towel.
- Or with a commercial pH neutral neutralising product followed by drying with a soft, non-abrasive, absorbent paper towel.

**Coated Metal Parts:**

- These must be inspected and free from any traces of corrosion.
- Check that there is no stagnant water in the spill tray.
- Clean the spill tray if necessary.
Erlab

Our mission: guarantee your protection in the lab

Erlab invented the first filtration fume hood in 1968. 45 years of expertise in chemicals filtration enable us to guarantee your protection throughout the following aspects:

1. R&D laboratory
   A worldwide unique lab as a warrant to Erlab expertise in filtration. Erlab innovates constantly to design highest level of chemical protection technologies.

2. Safety standards
   Our products performances are certified by compliance with the AFNOR NF X 15 211 standard.

3. Independent tests
   Our filtration technology has been tested multiple times by an independent laboratory according to AFNOR NF X 15 211 requirements. Results prove filters efficiency to maintain concentration in recirculated air at lower than 1% of tested chemicals TLV.

4. Chemical listing
   Our unique know-how enable us to communicate on our filters retention capacities over 700 chemicals, following AFNOR NF X 15 211 requirements.

5. Erlab Safety Program
   Our safety program is the warrant of your protection at all stages: any project begins with an application analysis to allow our lab to recommend the suitable solution. All installed equipements are then followed-up to guarantee the highest level of protection over time.

6. Our questionnaire
   Allows our lab specialists to recommend adapted filtration fume hood, filter type and predictive life-time, such as personnalisated assessment.

7. We make your fume hood uses a commitment
   Our laboratory provides a usage certificate for each fume hood, in compliance with AFNOR NF X 15 211 requirements.