Monmouth Scientific

Operating & Maintenance Manual

Circulaire® Horizontal & Vertical **Laminar Flow Cabinets**

HLFT1000/HLFT1200/HLFT1500/HLFT1800
VLFT1000/VLFT1200/VLFT1500/VLFT1800

THE MARKET LEADER IN *CLEAN AIR SOLUTIONS*

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Warning

This cabinet must be used in compliance with these instructions and any repairs or maintenance carried out by qualified personnel.

For parts or service information please contact Monmouth Scientific on: +44 (0) 1278 458090

Section 1

Description of the cabinet

The Circulaire range of Laminar Flow cabinets provide ISO class 4 (Class 10) clean air at a velocity >0.35m/sec. over the entire working area. The cabinets are supplied in sizes to suit most applications. All cabinets are fitted with an airflow monitor which provides visual and audible warning should the airflow drop below the minimum level.

MODEL		**Circulaire VLFT1000**	**Circulaire VLFT1200**	**Circulaire VLFT1500**	**Circulaire VLFT1800**
External Dimensions		1000mmWide 665mmDeep 1250mm High	1200mmWide 665mmDeep 1250mm High	1500mmWide 665mmDeep 1250mm High	1800mmWide 665mmDeep 1250mm High
Internal Dimensions		985mmWide 645mmDeep 700mm High	1185mmWide 645mmDeep 700mm High	1485mmWide 645mmDeep 700mm High	1785mmWide 645mmDeep 700mm High
MODEL	**Circulaire HLFT900**	**Circulaire HLFT1000**	**Circulaire HLFT1200**	**Circulaire HLFT1500**	**Circulaire HLFT1800**
External Dimensions	900mmWide 700mmDeep 1165mm High	1000mmWide 700mmDeep 1165mm High	1200mmWide 700mmDeep 1165mm High	1500mmWide 700mmDeep 1165mm High	1800mmWide 700mmDeep 1165mm High
Internal Dimensions	885mmWide 490mmDeep 715mm High	985mmWide 490mmDeep 715mm High	1185mmWide 490mmDeep 715mm High	1485mmWide 490mmDeep 715mm High	1785mmWide 490mmDeep 715mm High

Section 2

Installation

General

The cabinet is supplied fully assembled and ready for use.

The following guidelines should be observed when installing the cabinet:

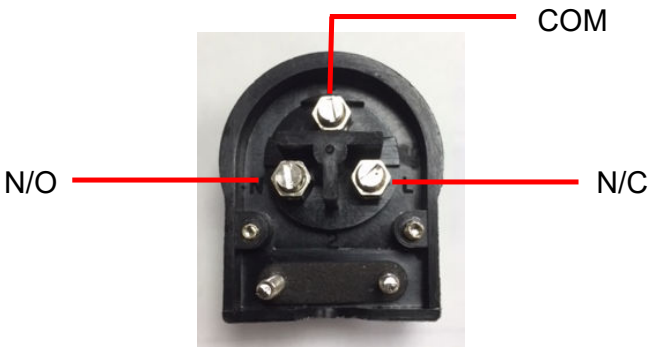
- Site the cabinet in a draught free position with a minimum of 200mm from the top of the cabinet to the ceiling to prevent obstructing the air inlet and to provide access to change the pre-filter. Installation within a clean area is preferred as this will maximise and prolong filter life.
- Connect the cabinet to a 13A electrical socket.
- Optional VFC relay.

  A Volt-free contact is available as a factory-fit option. If fitted, it is located to the rear of the cabinet next to the power inlet. This allows for connection to external monitoring systems/BMS etc.

  When the cabinet is powered on, after approx. 30 secs, the relay will be energized, when the cabinet airflow alarm is triggered or the unit is powered off, the relay is de-energized.

  Relay is rated at 0.5A@125Vac / 1.0A@30Vdc/ 0.3A@60Vdc, normally open contacts

  An unterminated plug is provided for user connection and should be wired as below.



Testing / Commissioning

A test certificate will be supplied for conformity to CE marking, and electrical test. The airflow should be checked using a vane anemometer and the results recorded. The main ULPA (U15) filter will have been factory tested before delivery. A DOP filter challenge test should be carried out to verify filter integrity when the cabinet is installed.

THE CABINET SHOULD BE TESTED EVERY 12 MONTHS.

Control System

The cabinet is controlled and monitored by a microprocessor with an LCD touch screen. The touch screen provides the operator with general information about the cabinet and displays the current laminar velocity and differential pressure across the ULPA filter. Control of light level, fan speed and other operating settings are all accessed via a menu system. The control system is factory set to maintain the following parameters:

Normal airflow velocity: 0.40m/sec.

Low airflow alarm: 0.30m/sec.

These settings can be changed by Monmouth service personnel. Please contact Monmouth Scientific for further advice.

Laminar Airflow

The microprocessor controls the fan speed to compensate for filter blockage. The airflow velocity is continuously monitored and displayed. The value will fluctuate slightly during normal operation, this is normal and is an indication that the fan is under microprocessor control. If preferred the units displayed can be changed to ft/min. in the Supervisor Settings.

Filter Pressure

The cabinet is fitted with a pressure sensor which monitors the pressure drop across the main ULPA filter. Over time, as the filter becomes blocked the pressure will slowly increase. When the pressure reaches the recommended maximum (250pa) a warning will be displayed. The filter is protected by a pre-filter and should last several years if properly maintained and the cabinet is deployed within a clean area.

Section 3

Controls

 Light On / Off

 Reduce Brightness

 Increase Brightness

 Fan Speed 2

 Normal Fan Speed

 Fan Off

 Settings - access to settings menu

 Information - Cabinet and filter information

 Standby - Puts cabinet into standby

UV Disinfection settings (where fitted)

 Home

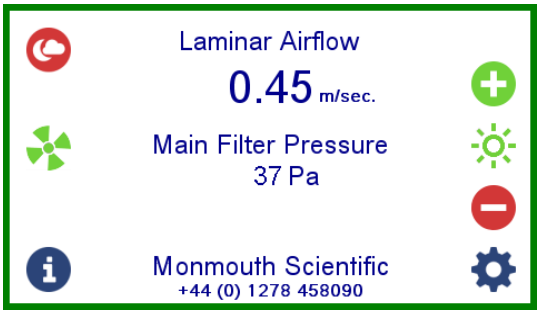
 Return/Back

Operation

The main on/off switch is located on the right-hand side near the top of the cabinet. When first turned on, the cabinet will perform some checks and after a short period the fan will start.

The screen provides the operator with general status and instructions for use.

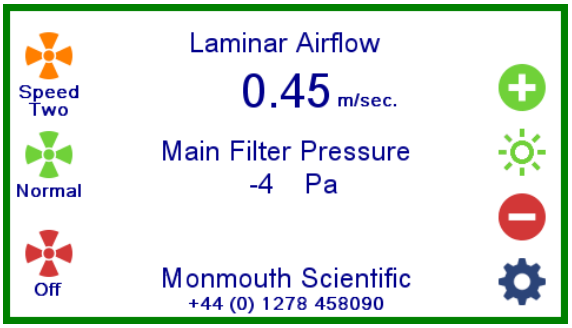
Using the buttons to control and adjust the cabinet.



Fan control

By default, the cabinet will start and run at the NORMAL setting.

Pressing the button will present the user with options to select NORMAL / SPEED 2 or OFF



SPEED 2 is a preset that can be set higher or lower then NORMAL. An example of it's use could be to set higher to rapidly purge the cabinet** or lower to conserve energy when a non-critical task takes place within the cabinet.

(Settings to allow the user to preset the fan speeds are accessed in the Supervisor or Service menu).

Selecting OFF will turn the fan off. All other cabinet features such as the ighting will remain on.

** The user should aware that an airflow velocity above normal will substantially increase power consumption and noise levels, in addition it will also reduce filter lifespan.

Standby Mode

The cabinet can be put into standby mode by pressing the key. When in standby mode the fan, lights and control system are turned off.

Normal operation is resumed by touching anywhere on the darkened screen.

If the cabinet is not to be used for several days, the cabinet can be turned off at the main on/off switch if preferred.

Eco Mode

If enabled in the supervisor settings, Eco is effectively an automatic Standby mode that turns off the lights if no activity is detected within the cabinet for a pre-selected time. The fan speed is unaffected and will continue to run at the currently selected setting.

Normal operation is resumed by touching anywhere on the darkened screen.

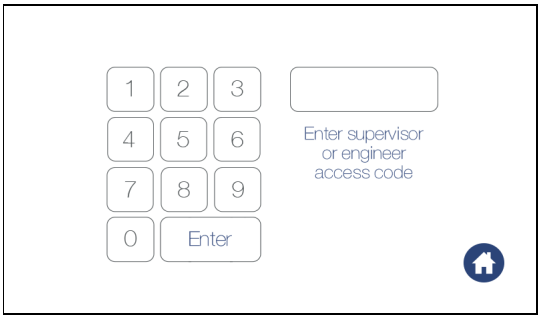
Lighting

Lighting can be adjusted or turned off by pressing the button.

Adjustments can be made by pressing the or buttons. Pressing the twice will turn the lights off. Pressing again will turn the lights back on.

Supervisor Settings

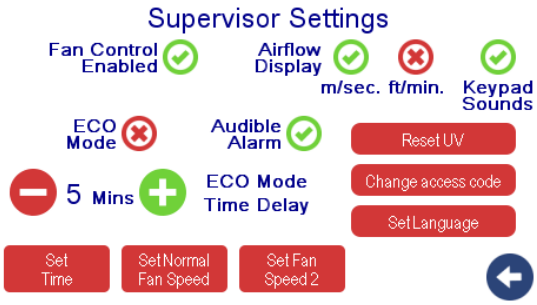
Pressing the key on the main screen enters the Set-Up menu access screen.



The Supervisor access code is supplied with the cabinet and allows access to change operating preferences.

The key returns to the normal display screen.

When the correct Supervisor code is entered the screen below is displayed.



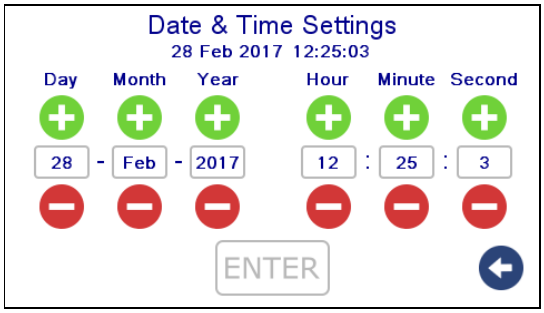
Laminar Airflow Display - Select preferred velocity units.

ECO Mode - Choosing this option will enable ECO mode.

Eco mode turns off the lights if no activity is seen inside the cabinet for a time period set by the Eco Mode Time Delay at the bottom of the screen. Normal operation will be resumed when operator touches the screen.

Audible Alarm - Turns off the audible low airflow alarm.

Keypad Sounds - Turns off the audible key beeps.



Pressing the key returns to the previous screen.

Reset UV - Displays a UV reset screen to reset the date / hours run when a new UV tube is fitted. This key/page will only be displayed on models fitted with a UV disinfection option.

Change access code – This allows the supervisor to set their own access pin code (Default set to 4916)

Set Time - displays a time / date setup screen

Pressing “No” returns to the previous screen without resetting.

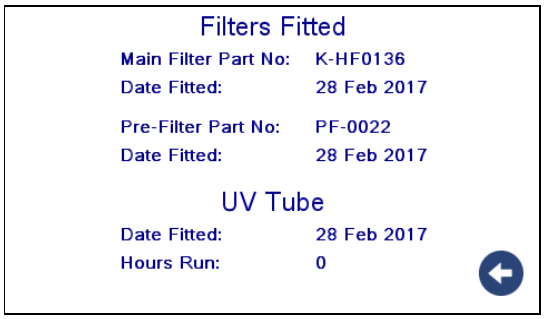
Set Normal Fan speed – Opens a dialogue page that allows the user to set the fan speed when the NORMAL button is pressed. Follow the on-screen prompts to set.
Set Fan speed 2 – Opens a dialogue page that allows the user to set the fan speed when the 2nd fan speed button is pressed. Follow the on-screen prompts to set.
Be aware that an airflow lower than 0.3m/sec will trigger the low airflow alarm. If you need to run the cabinet in this state then please recalibrate the alarm to trigger at a point below your lowest setting.

Information

Pressing the key on the main screen will display the information screen below featuring key information about the unit.

Service information is reset by Monmouth personnel during a service visit. When a service becomes due, a warning screen will be displayed momentarily on start-up during the proceeding month.

Pressing the key will display additional information of the filters fitted and UV tube life. The key will return to the previous screen.

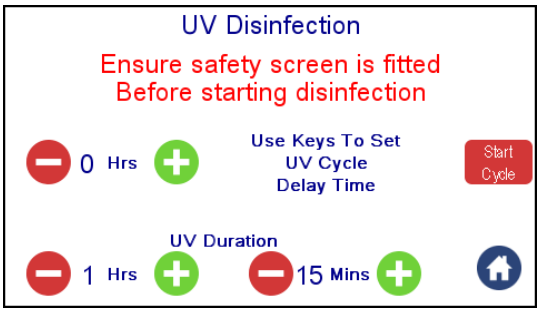


UV Disinfection (Option)

The cabinet is equipped with an ultraviolet germicidal lamp for additional disinfection purposes. The lamp is UV-C (254nm) 30w.

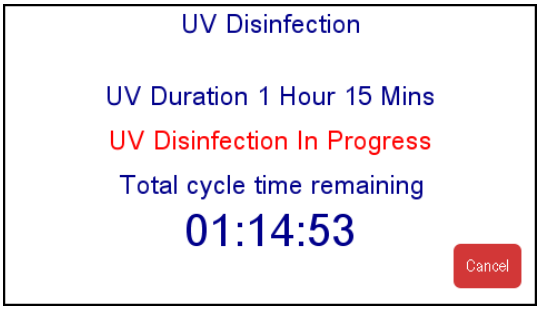
Note - For the UV lamp to be effective, the target MUST be in direct line of sight with the light source. It is also the user's responsibility to satisfy themselves whether it is suitable for the intended process.

Pressing the UV button on the home screen will display the screen below



The safety screen is interlocked with the UV disinfection cycle and the cycle will not run if it is not fitted. Use the arrow keys to set the disinfection time and cycle start delay if required.

Press "Start Cycle" to commence. The screen below is displayed showing progress & time remaining until the end of the cycle.



If the safety screen is removed or the "cancel" button is pressed the cycle will terminate.

At the end of the cycle (or if aborted), the following screen is displayed. Follow the instructions to return to normal operations or return to UV setup.

Section 4

Maintenance

The cabinet should be isolated from the electricity supply before carrying out any maintenance procedures. All work should only be carried out by suitably qualified personnel.

Fuses

The main fuses are located within the mains inlet socket on the top of the cabinet. Remove the mains lead and withdraw the fuses using a small screwdriver. Always replace with the correct type and rating – 5A Type T. The electrical socket is protected by 5A Type T fuse located adjacent to the socket outlet.

Led Lighting

The high efficiency, low voltage LED light tubes are fitted to the inside of the enclosure. They should provide many years of service without requiring replacement. Spare tubes are available from Monmouth Scientific and have the following part numbers:

HLF	VLF	Part #
HLFT 900	n/a	GS-01514
HLFT 1000	VLFT1000	GS-01539
HLFT 1200	VLFT 1200	
HLFT 1500	VLFT 1500	GS-01540
HLFT 1800	VLFT 1800	

Care should be taken to ensure the tubes are fitted in the correct orientation with the red+ marking on the tube aligning with red mark on the fitting.

Pre-Filter(S)

This is located on top of the cabinet and can be changed by removing the two thumbscrews on the securing frame. Monmouth Pre-Filter part No: K-PF0022

HLF	VLF	Part #	QTY REQUIRED
HLFT 900	n/a	K-PF0022	1
HLFT 1000	VLFT1000		1
HLFT 1200	VLFT 1200		1
HLFT 1500	VLFT 1500		2
HLFT 1800	VLFT 1800		2

Main ULPA Filter (VLFT units)

- Open the control panel by removing the 2 screws inside the lower cabinet.
- Remove the two filter clamp bolts.
- Lift and hold open the head assembly using the prop at the right hand side.
- The ULPA filter may now be withdrawn from the front of the cabinet and a replacement fitted.
- The replacement filter should be DOP tested prior to use and the airflow and alarm re-calibrated if necessary.

Model	Part #
VLFT1000	K-HF0135
VLFT 1200	K-HF0136
VLFT 1500	K-HF0137
VLFT 1800	K-HF0138

Main ULPA Filter (HLFT units)

- Remove the screws securing the back panel and lift it clear.
- Remove the screws securing the filter clamp frame.
- The HEPA filter may now be withdrawn from the rear of the cabinet and a replacement fitted.
- The replacement filter should be DOP tested prior to use and the airflow and alarm re-calibrated if necessary.

Model	Part #
HLFT 900	K-HF0139
HLFT 1000	K-HF0140
HLFT 1200	K-HF0141
HLFT 1500	K-HF0142
HLFT 1800	K-HF0143

Section 5

Servicing

An annual service is recommended to maintain optimum operating conditions and will include the following points:

- Check / replace pre-filter
- DOP test the main ULPA filter
- Check airflow monitor and re-calibrate if necessary
- Check and record downflow velocity readings
- Check general condition of cabinet - glazing, hinges etc.
- Inspect electrical components, lighting, cables etc.
- Issue test report and airflow certificate.

For parts or service information:
Please contact Monmouth Scientific on: +44 (0) 1278 458090

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5 year warranty* *Terms & Conditions Apply

British Design & Manufacture

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UKAS MANAGEMENT SYSTEMS 015