Monmouth Scientific

Operating & Maintenance Manual

PCC

Powder Containment Cabinet

PCC-90/120/150 (Software V0.34)

THE MARKET LEADER IN *CLEAN AIR SOLUTIONS*

www.monmouthscientific.co.uk

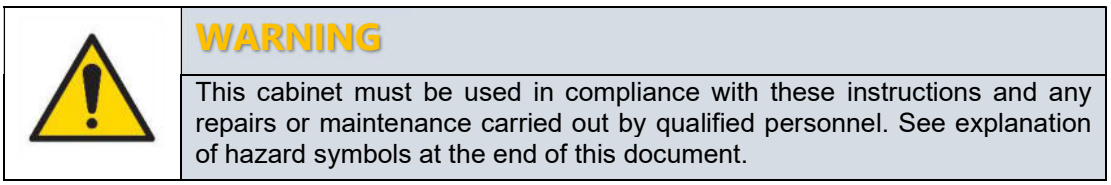
English Version

Revision 1c, 16th May 2024

Table of Contents

This manual is intended to provide information about the product. Monmouth Scientific assumes no liability whatsoever for the accuracy of any information contained herein, as products can be subject to improvement and/or changes at any time.

Monmouth Scientific
Unit 5 & 6 Kilnside
East Quay
Bridgwater
TA6 4DB
United Kingdom.



For parts or service information please contact Monmouth Scientific:


info@monmouthscientific.co.uk


+44 (0)1278 458090


http://monmouthscientific.co.uk

SECTION 1

Description of Unit

The PCC unit is designed to contain powders usually during the weighing process. The low velocity inward flow of air into the cabinet protects the operator without disturbing the powder during handling.

The cabinet uses a high efficiency fan and LED lighting for low power consumption together with an ECO mode for even further power savings.

The PCC is available in 3 variants the PCC-90, PCC-120 & PCC-150 at widths of 900mm, 1200mm and 1500mm respectively. The unit comes fitted with a single high efficiency H14 HEPA filter but is also available with an additional H14 exhaust HEPA filter and/or carbon filters.

Normal Environmental Conditions

INDOOR OR OUTDOOR USE	INDOOR USE
TEMPERATURE	5 °C to 40°C
RELATIVE HUMIDITY	MAX HUMIDITY 80%
OVERVOLTAGE CATEGORY	OVERVOLTAGE CATEGORY II
POLLUTION DEGREE (II)	POLLUTION CATEGORY II
ALTITUDE	UP TO 2000m
MAINS SUPPLY VOLTAGE FLUCTUATION	230V -6% +10%

Technical Data

	VARIANT		
	90	**120**	**150**
AIR INLET VELOCITY (+/- 0.02 m/s)	0.37 m/s	0.37 m/s	0.37 m/s
AIR VOLUME (mean)	346 m³/h	466 m³/h	586 m³/h
POWER REQUIREMENT	1~230V 50Hz	1~230V 50Hz	1~230V 50Hz
POWER CONSUMPTION	150 W (MAX)	200 W (MAX)	250 W (MAX)
WEIGHT, ASSEMBLED	130 Kg (Approx)	174 Kg (Approx)	217 Kg (Approx)
NOISE LEVEL	TBC	49.5dB @ 1m	TBC
LIGHT INTENSITY	>1500 LUX	>1500 LUX	>1500 LUX
DIMENSIONS, WIDTH X DEPTH	900 X 832mm	1200 X 832mm	1500 X 832mm
DIMENSIONS, HEIGHT	SEE SECTION 2	SEE SECTION 2	SEE SECTION 2
MODEL No.	PCC 90	PCC 120	PCC 150

Test Certificates (unit specific)

	Document No.
AIRFLOW & PAT TEST CERTIFICATE	
DOP TEST CERTIFICATE	
SF6 TEST CERTIFICATE	
EN61010-1:2010 ELECTRICAL SAFETY STANDARD. EN61326-1:2013 CLASS A, EMC STANDARD TEST.	C20-5317 20-5317-2
RESERVED	-

Packaged Items

 PCC unit	 Power Cable, C13, IEC country specific (Plug, 10A, 250 V)
 DOP, Airflow & Electrical Certificate	 PCC User Manual

SECTION 2

Installation

	**WARNING** Heavy object. Ensure the correct lifting equipment and PPE is used during installation.

	**NOTICE** For best performance, the unit should be positioned away from human traffic, opening doorways and windows.

The PCC unit must be mounted on a flat and level surface. The mounting surface must be at least as large as the PCC footprint i.e. the unit must not overhang on any side.

Once installed Check that the worksurface is level left to right and front to back using a spirit level and adjust where necessary. See **Fig 2.1.1, Fig 2.1.2 & Fig 2.1.3** for installation dimensions.

Use the supplied mains cable to connect the unit to the power supply then switch the unit on using the mains switch located at the back of the unit, ref **Fig 2.1.1**.

	**CAUTION** Only the supplied mains cable must be used to connect the unit to the power supply. Damaged cables must be replaced.

Customer to Provide:-

- Electrical outlet socket, 1~230V, min 5A.

- A stable mounting frame or table.
- At least 200mm clearance from the top of the unit to the ceiling, and 40mm clearance at the rear, see **Fig 2.1.1**.
- If the unit is used in a ducted configuration a Ø200mm flexible duct must be provided to connect to the top of the unit, ref **Fig 2.1.2**.

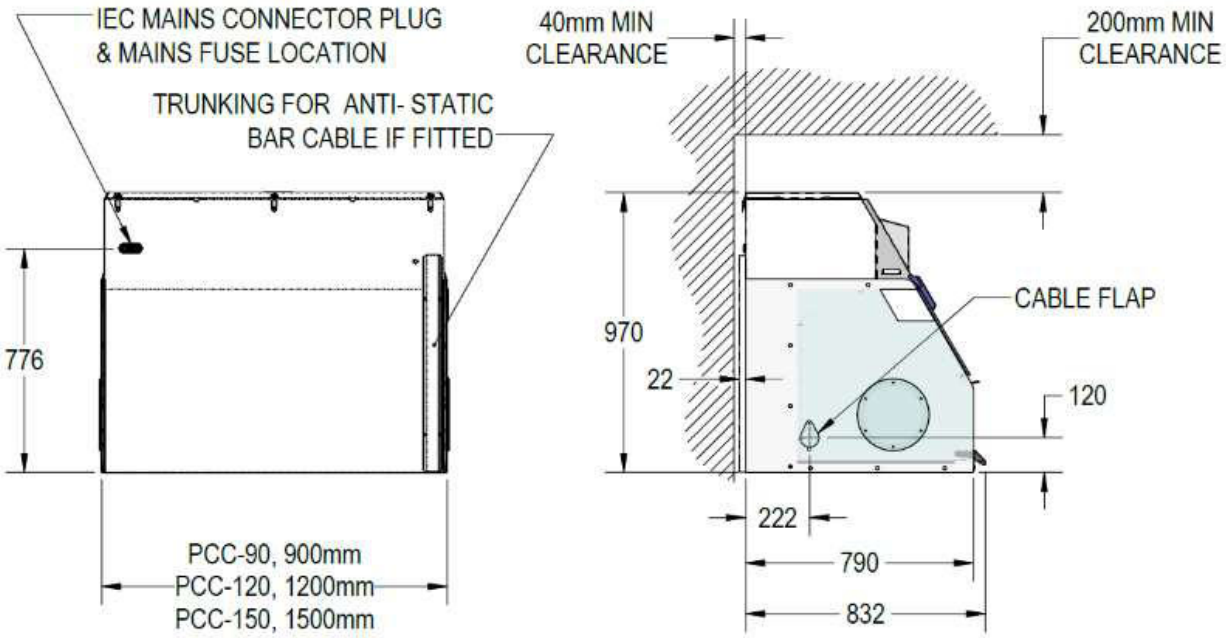


Fig 2.1.1

Installation Dimensions, Recirculated Option

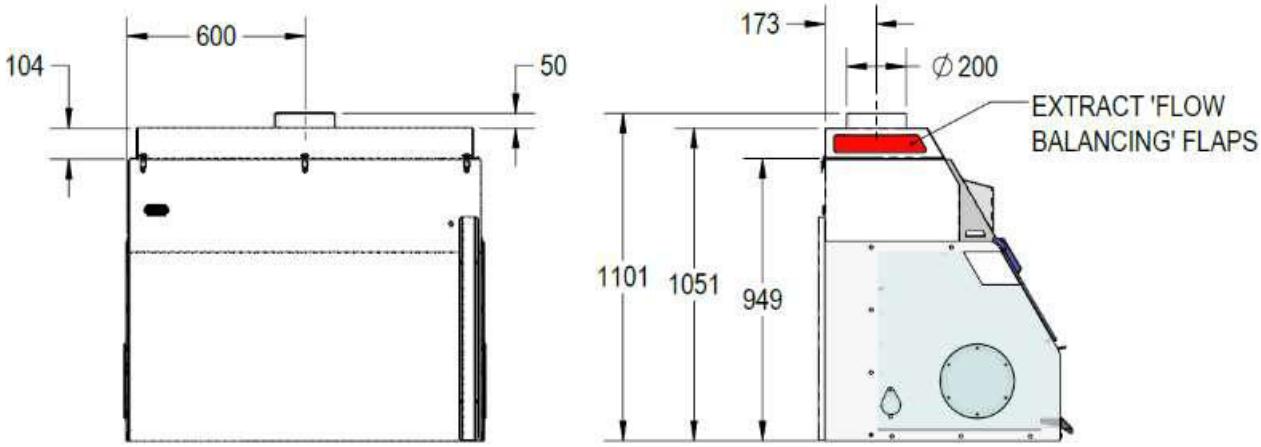


Fig 2.1.2

Dimensions, Ducted Option

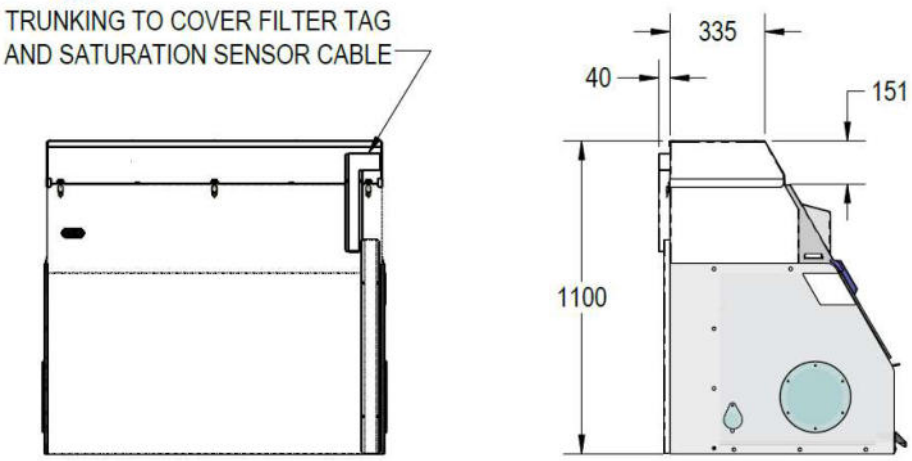


Fig 2.1.3

Dimensions, With Carbon Filter Box Fitted

SECTION 3

General Operation

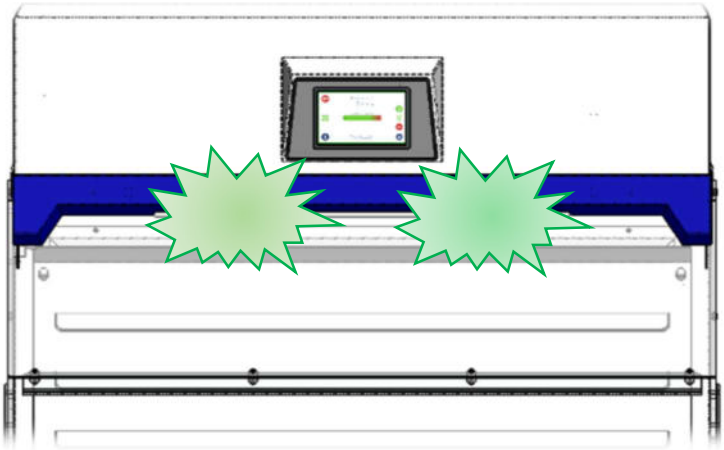
	**CAUTION** • The PCC unit is not equipped with any fire arrest or fire detection systems so care should be taken when working with flammable substances within the cabinet. • The unit must only be used for the intended purpose. Monmouth Scientific is not responsible for injury or damage to equipment caused by incorrect use.

The only means of switching the unit on is via the mains power switch located at the back of the unit, ref **Fig 4.1.** The PCC is designed to run continuously and will automatically enter into economy (ECO) mode when an operator is not present.

	**NOTICE** The unit can be turned off at any time using the main power switch without causing any harm to the unit.

Once turned on the unit will take about 25 seconds to boot to the main screen and a further 14 seconds for the fan to reach operational speed. At this point the status lights will turn **GREEN** indicating 'normal' operating condition. There are 3 operational conditions which have different colours which are:

GREEN	Indicates normal running mode.
BLUE	Indicates ECO mode (main light turns off).
RED	Indicates low flow.
Light off	Standby mode / unit off.



If no carbon filters are fitted the unit will boot straight into the home screen. If the carbon filter option has been selected in setup but NO carbon filters are installed a ‘No Filter Data Detected’ screen will appear.

When carbon filters are fitted you will be presented with a screen asking you to confirm the suitability of the carbon type. If the carbon type is correct press YES to enter the home screen. If the carbon type is incorrect press NO and report it to Monmouth Scientific.

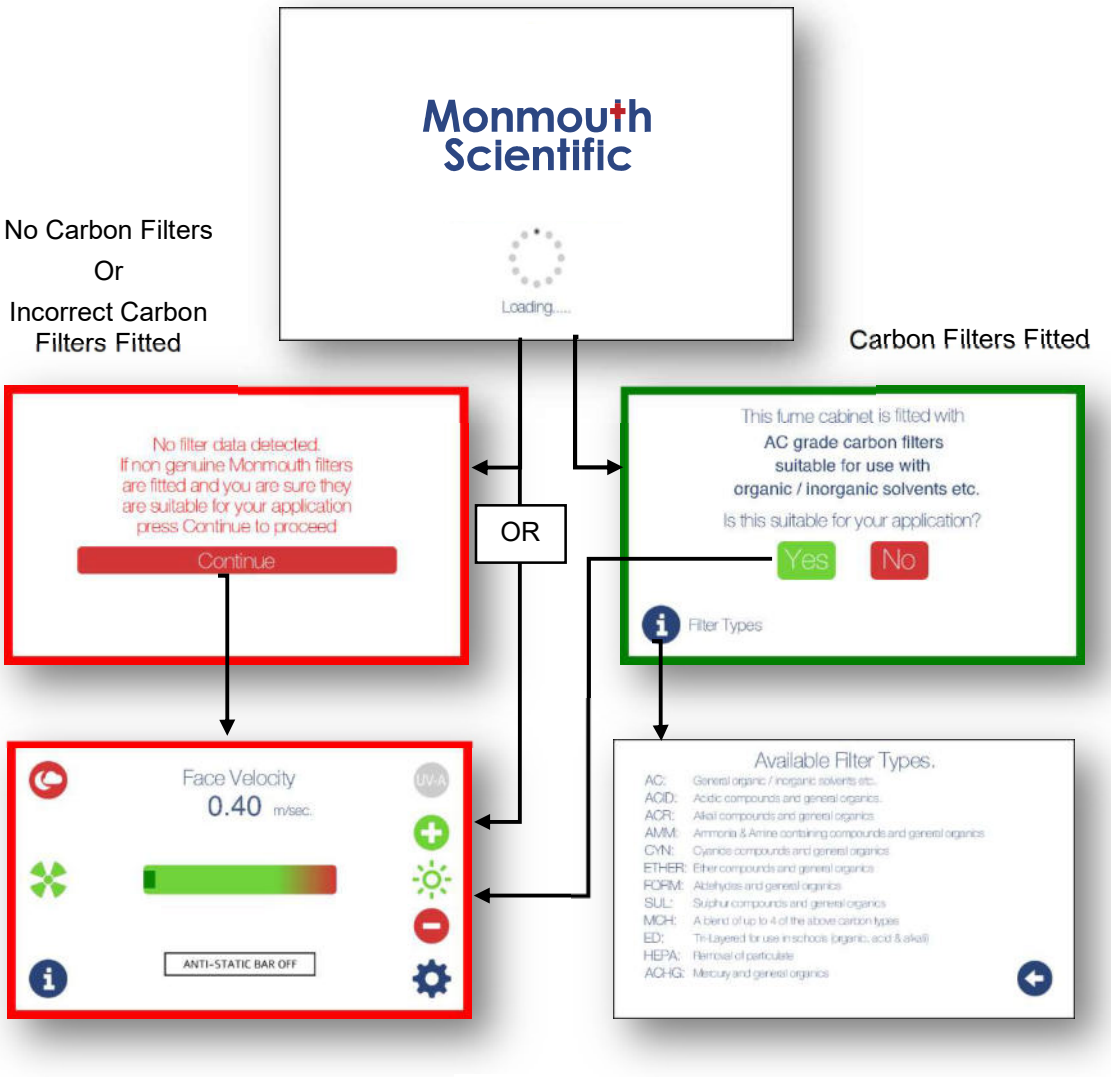


Fig 3.1

Start-up screens

	NOTICE
	All screen images in section 3 may change due to software updates. The manual is only meant as a guide, always follow the instructions on-screen.

Control Panel

Home Screen

Once the machine has started and you have gone through the process in the previous section you will be presented with the home screen shown below. The Anti-static bar and UV-A light are options so may not appear on your unit. The carbon saturation level will also not appear if no carbon filters are fitted

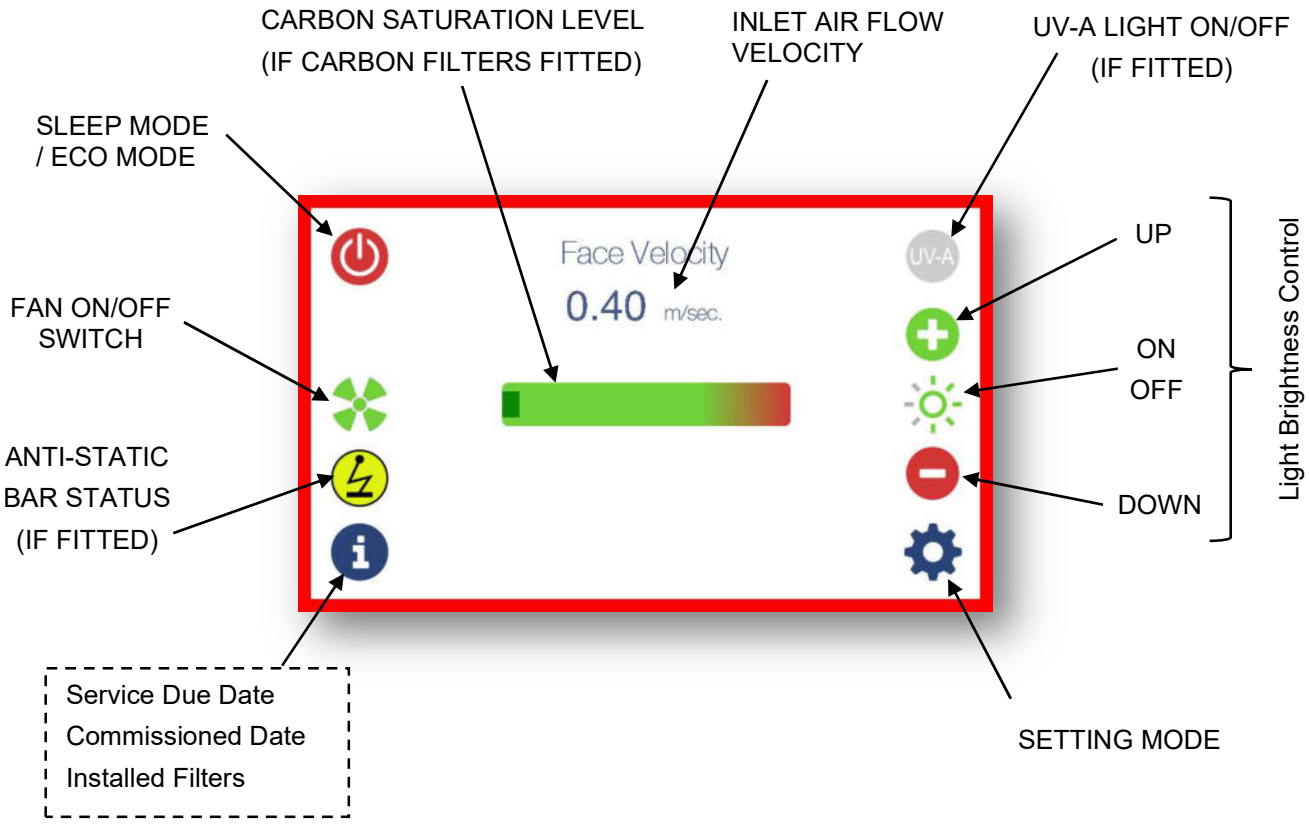


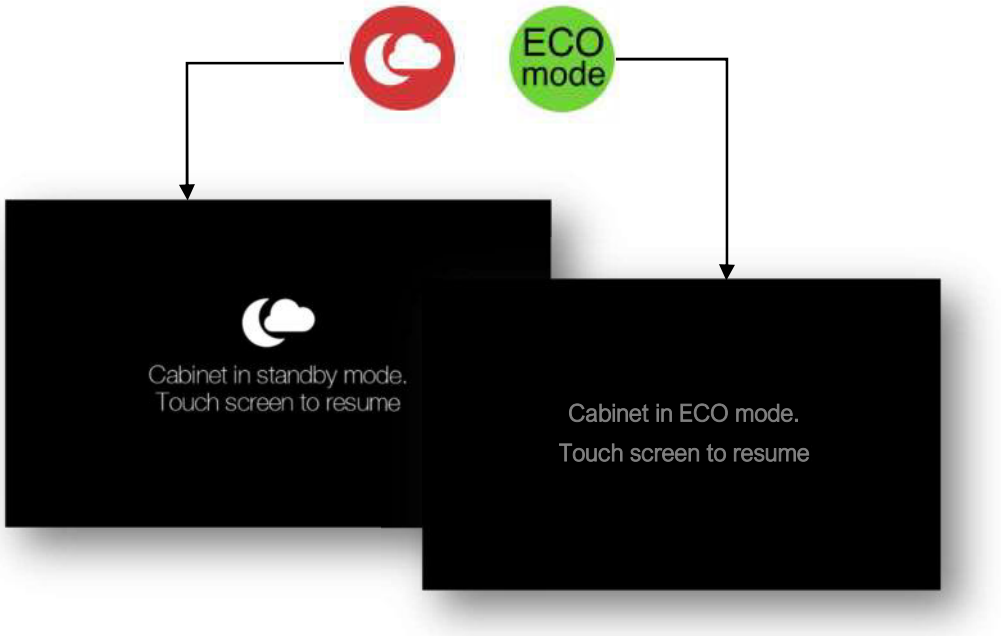
Fig 3.2

Home Screen

Power Button (Sleep & ECO modes)

When the power button is pressed you will be presented with 2 new buttons, Sleep and ECO (Note; If the ECO button is not present it will need to be turned on in the Supervisor Setting menu). Pressing the sleep button will turn off the fan and lights. To turn the unit back on press the touch screen. It will take approximately 20 seconds for the fan to stabilize and the unit to be fully operational.

Pressing the ECO button will turn the lights off and reduce the fan speed. You can wake the PCC almost instantly from ECO mode by touching the screen.



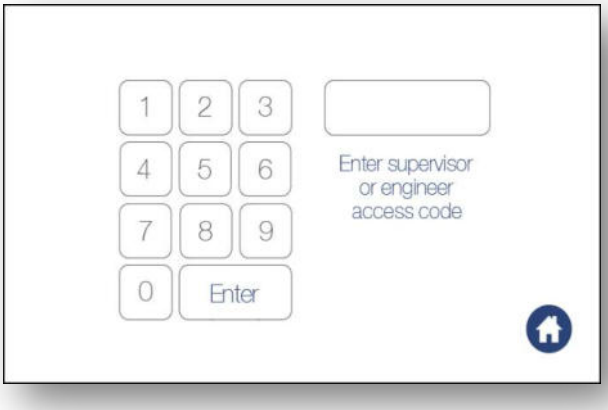
The PCC will automatically enter into ECO mode if no movement is detected within the cabinet after a set amount of time (adjustable within the Supervisors Settings menu). This function can also be turned off.

	CAUTION
	In ECO mode the PCC operates at a lower inlet velocity which may affect containment in certain conditions (air movement from doors, windows, human traffic etc). If the PCC is used unattended, for instance in automated processes, the ECO mode should be disabled.

The PCC uses very little energy in sleep mode so it is not necessary to turn the unit off at the mains switch unless the unit will not be used for several days.

Settings Mode

To enter the settings access keyboard below press the gear icon from the HOME screen. Enter the relevant access code (Supervisor, Production or Service) and press enter. Default codes shown below.



Supervisor Settings Code

4916

Production Setup Code

RESTRICTED

Service Settings Code

RESTRICTED

	NOTICE
	To prevent accidental adjustment of the unit parameters the 'Production Setup' and 'Service Settings' codes should only be shared with Service Engineers. In most cases the operator should not need to access any of the settings modes during normal operation.

Supervisor Settings:

Refer **Fig 3.3**

The Supervisor Settings allow adjustment and access to some basic functions and the following sub menus:-

- **Set Time**: Sets the current date and time. Press Enter to save
- **Set Language**: Select different language.
- **Change Access Code**: Changes supervisor code only. Enter new code and press enter to save.

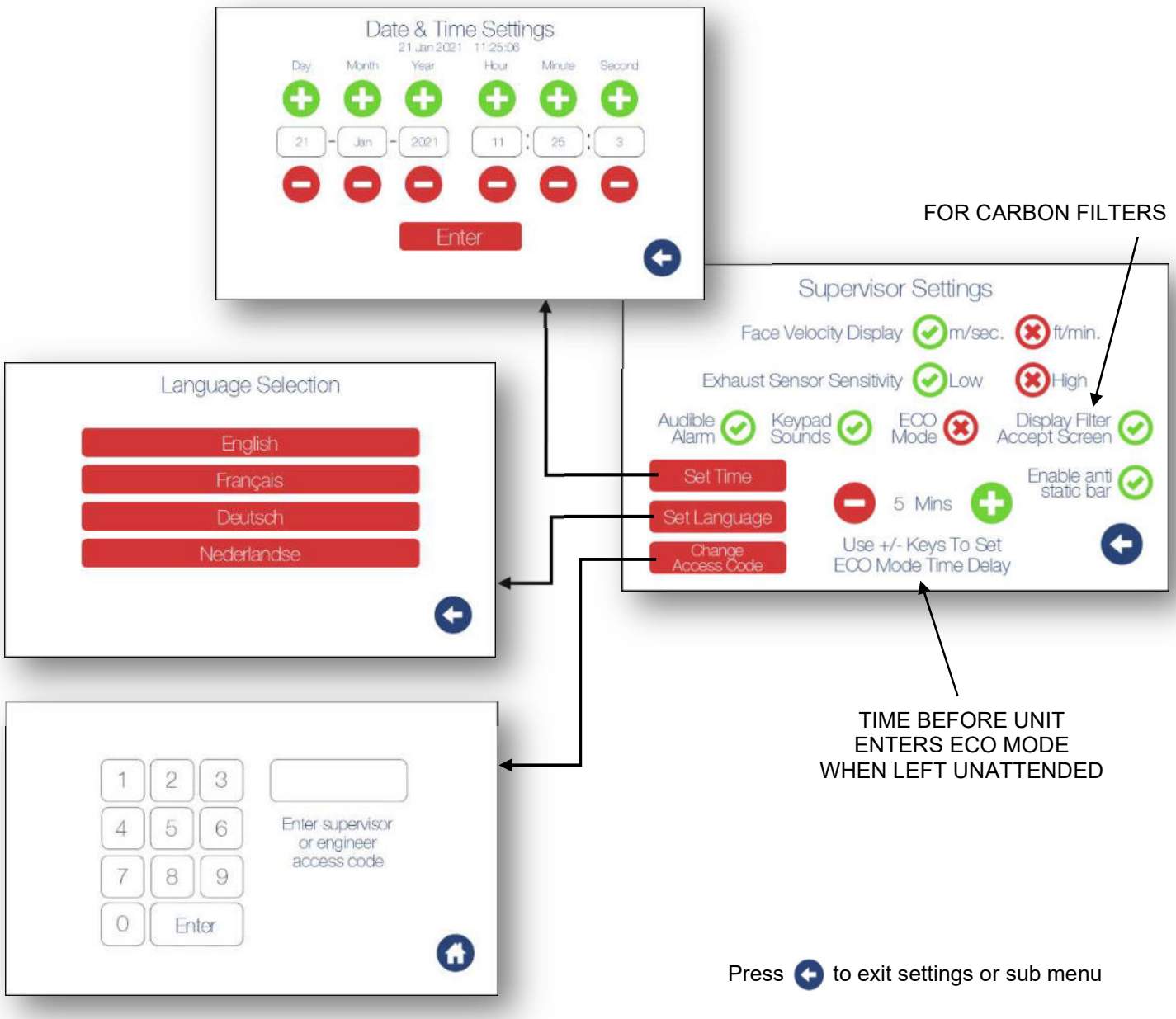


Fig 3.3

Supervisor Settings

Accessing Work Area

To access the work area pull the front cover up until it locks into place. To lower the front cover, hold the cover whilst pulling the spring latch(es) shown in **Fig 3.6**. Note: on the PCC150 the front cover is held in-place with a latch either end.

	**CAUTION** When lowering the front cover always support the cover by hand whilst operating the spring latch.

	**NOTICE** During normal use the front cover MUST be closed to ensure adequate containment.

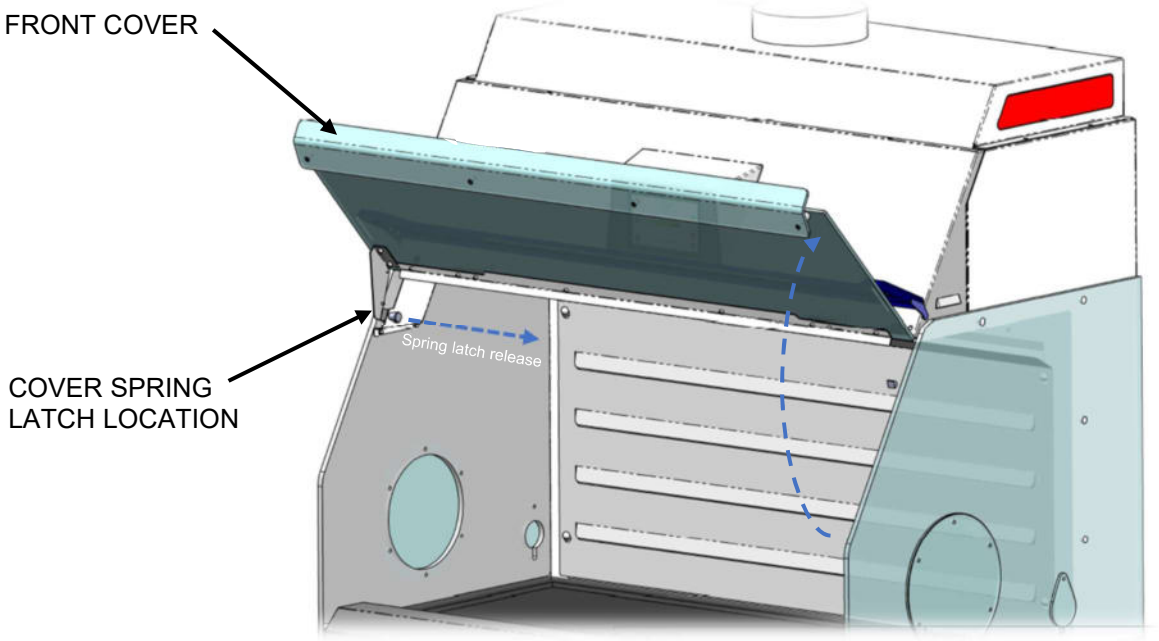


Fig 3.6
Work Area Access

SECTION 4

Maintenance

To ensure reliable containment and optimum performance the PCC must be maintained in accordance with the service intervals detailed in section 5. Filters may also need replacing if LOW AIRFLOW shows on the HOME screen.

	NOTICE
	Only trained and authorised specialists are permitted to connect, setup, service or repair the system/device in accordance with the rules for electrical safety.

	WARNING
	The cabinet must be isolated from the mains electricity supply before carrying out any maintenance procedures.

Fuses

The PCC unit is fitted with 2 mains fuses at the back of the unit. The fuses are located inside the IEC connector housing see **Fig 4.1**. To remove the fuse cover unplug the mains lead from the unit and lever the lifting tab up using a small flat screwdriver. Replace with 2 x type T, 5 x 20mm, 3A fuses.

	NOTICE
	If a fuse is blown ensure the unit is checked thoroughly to identify any faults with the electrical components or connected circuitry.

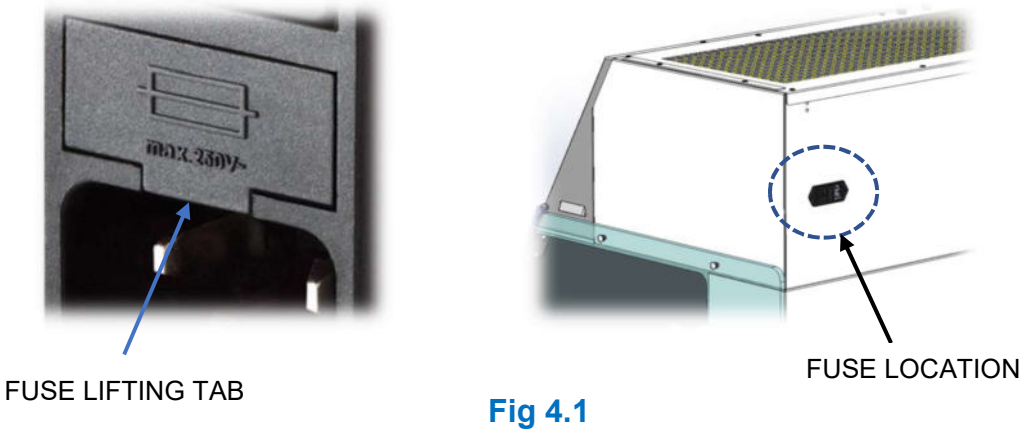


Fig 4.1

Main Fuse Location

If an anti-static bar is fitted the circuit will be protected by an additional fuse. This fuse is located behind the front cover on the left hand side din rail as shown in **Fig 4.2**. Replace with type T, 5 x 20mm, 1A fuse.

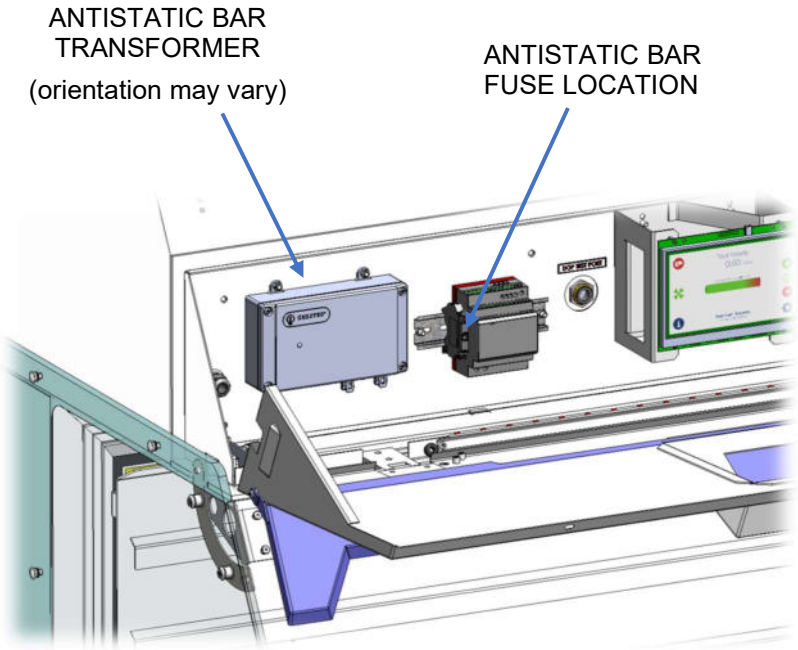


Fig 4.2

Antistatic Bar Fuse Location.

(PCC-120 shown, layout may vary slightly on other variants)

Filter Selection Table:

ITEM	FILTER TYPE		PCC-90	PCC-120	PCC-150
1	CARBON FILTER	AC	*3-off* **K-CF0466**	*4-off* **K-CF0466**	*4-off* **K-CF0477**
2		FORM	*3-off* **K-CF0471**	*4-off* **K-CF0471**	*4-off* **K-CF0478**
3		ACID	*3-off* **K-CF0472**	*4-off* **K-CF0472**	*4-off* **K-CF0479**
4	MAIN HEPA		*1-off* **K-HF0429**	*1-off* **K-HF0428**	*1-off* **K-HF0430**
5	SECONDARY HEPA		*1-off* **K-HF0411**	*1-off* **K-HF0409**	*1-off* **K-HF0432**

Fig 4.6
Filter Selection Table

Cleaning 

The powder coated surfaces of the PCC should be kept clean to preserve the finish by preventing stains. Only soapy water or mild detergents should be used on powder coated surfaces, abrasive products and harsh chemical cleaners should be avoided.

The glass or acrylic side and front panels must only be cleaned with soapy water. Abrasive products and harsh chemical cleaners must be avoided. Use microfibre clothes to avoid scratching the surfaces.

All versions of the work surface have some degree of chemical and scratch resistance. However care must be taken when selecting cleaning products to avoid damaging the surface. Avoid abrasive products and harsh chemical cleaners. Always check the compatibility of the cleaning chemicals against the surface to be cleaned.

SECTION 5

Servicing 

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

- Test unit for full functionality
- DOP test Hepa filter/s.
- Check filter inlet air flows.
- Check general condition of cabinet - fasteners, seals, corrosion etc.
- Inspect electrical components.
- Issue test report and airflow certificate.
- Install software updates if available.
- Note any feedback from customer.

SECTION 6

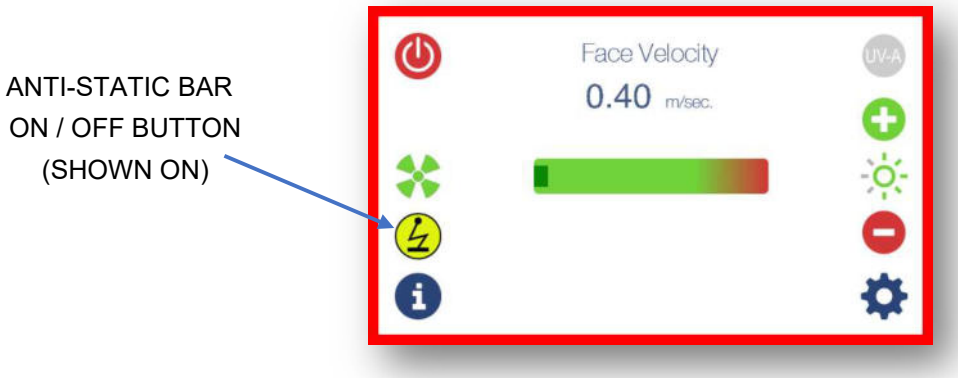
Optional Features

The following items are optional and as such may not be fitted to your HFC unit.

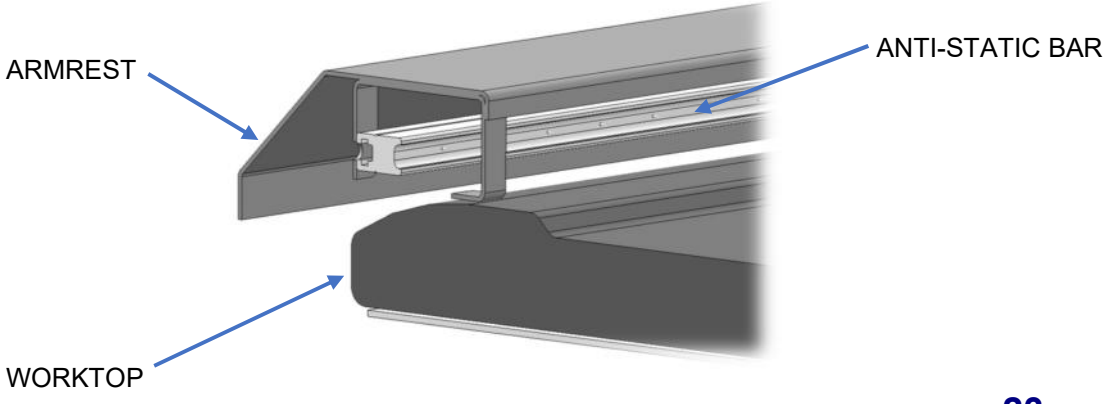
Anti-Static Bar

	**CAUTION** Avoid touching the Anti-Static bar located under the armrest. Although the bar is completely touch safe it may give you a small electrical shock when touched.

If an Anti-Static bar is fitted you will see a yellow button on the LCD display. If this button is absent no anti-static bar is fitted, or the anti-static bar has not been activated in supervisor settings. This button turns the anti-static bar on and off, it should be off by default.



The Anti-Static bar is located under the armrest. You should avoid touching the bar when the system is on as it may give you a small shock.



Endless Bag Feeder

The endless bag feeder (if fitted) allows for the disposal of contaminated waste. The system uses a transparent plastic HD-FE film bagging tube which is feed through the bagging system.

ENDLESS BAGGING SYSTEM FITTED TO LEFT OR RIGHT HAND SIDE OF UNIT

See below for instructions on loading & using the bagging cartridges. Replacement cartridges are available from Monmouth
Part No. GS-05123

	**CAUTION** Do not dispose of sharp or pointed objects into the bag feeder unit. Make sure the bagging system is suitable for the waste being disposed of.

	**WARNING** Do not use the disposal system in a potentially explosive environment. The friction of the film bag may lead to static discharge.

1. *Open the Endless Bag unit by turning the black locking knob anti-clockwise until the door is free to open.*

---

2. *Using the red tab on the cartridge Pull the film tube out by about 10cm.*
3. *Now feed the film tube inwards through the hole in the cartridge.*
4. *Insert the cartridge, with the opening facing the feeder system.*

---

5 *Close the bag feeder door fully then lock the door by turning the black locking knob clockwise until lightly tight. DO NOT OVER-TIGHTEN.*

---

6 *Check the door is closed by gently Pulling on locking knob.*

7 *Pull the bag through the feeder until about 25 cm of the bag is showing. Close the end of the bag using a knot or a cable tie.*

---

8 *Place contaminated waste, from Inside of the unit, through the tube in the feeder unit and into the film bag.*

---

9 *Gently pull the film tube out of the Feeder horizontally (do not pull downwards).*

---

10 *Seal the film tube between the waste and the cartridge using a knot or a cable tie. The contaminated waste is now sealed in the film tube.*

11 *Add a second knot or cable tie between the waste and the feeder unit to seal the tube for the next disposal process.*

12 *Cut the film tube between the knots to Remove the bagged waste.*

UV (black) light

The UV-A light (if fitted) is used to illuminate white powder particles to aid in the cleaning process.

If a UV light is fitted to your PCC you will see a grey UV-A light button on the top right hand side of the LCD display. Activating the UV light will turn on the UV-A light and turn off the main LED light.

	NOTICE
	The UV light is not a UV-C germicidal light and will not be effective for the decontamination of cabinet.

SECTION 7

Certificates

Monmouth Scientific

THE MARKET LEADER IN CLEAN AIR SOLUTIONS

EU DECLARATION OF CONFORMITY

CE

Monmouth Scientific Ltd
Units 5 & 6 Kilnside
East Quay, Bridgwater
TA6 4DB

We declare under our responsibility, that when installed in accordance with the installation and commissioning instructions, the following products, to which this declaration relates

Powder Containment Cabinet, Model: HFCpro/PCC-90 /120/150
are in conformity and compliance with the following standards, directives or other normative documents, and follow the essential requirements and provisions as stated below:

BS EN ISO 14175 'Fume Cupboards'
Consisting of the following parts, under the general title Fume Cupboards:
Part 1: Vocabulary & Measurement, Part 2: Safety And Performance Requirements, Part 3: Type Test Procedures, Part 4: On-Site Test Procedures, Part 5: Recommendations For Installation And Maintenance--- published as Technical Specification CEN/TS 14175-5, Part 6: Variable Air Volume Fume Cupboards

BS 7989:2001 'Specification For Recirculatory Filtration Fume Cupboards'

Electromagnetic Compatibility (EMC) Directive (2014/30/EU)
Harmonized Standard:
EN 61326-1:2013 'Electrical Equipment For Measurement, Control And Laboratory Use'
(EMC requirements & general requirements)

Low Voltage Directive (2014/35/EU)
Harmonized Standard:
EN 61010-1: 2010 'Safety Requirements For Electrical Equipment For Measurement, Control And Laboratory Use'
(general requirements)

Machinery Directive (2006/42/EC)
DS/EN ISO 12100-1: 2010 / DS/EN ISO 12100-2: 2010 'Safety Of Machinery'
(general principles, basic terminology and methodology used in achieving safety of machinery---design guidance / technical principles and specifications)

BS EN 60204-1:2018 'Safety Of Machinery'
'Electrical Equipment Of Machines'
(general requirements)

RoHS 3 Directive (2015/863/EU)
'Restriction Of Hazardous Substances'
(in electrical and electronic equipment)

Name Of Authorised Person: Mr David Pomeroy (Managing Director)

Dated: 15/05/2021 **Signed:**

ISSUE1

Monmouth Scientific Limited
Units 5 & 6, Kilnside, East Quay, Bridgwater, Somerset, TA6 4DB.
Telephone: 01278 458090
Email: info@monmouthscientific.co.uk www.monmouthscientific.co.uk Registered Company No. 04716008

CERTIFICATE

Electrical Safety Test Certificate

Date Issued:	February 15th 2021
Issue number:	1
Certificate number:	C20-5317

Manufacturer:	Monmouth Scientific Limited
Product name:	HFC/PCC Powder Containment Unit
Model Number:	PCC-120
Serial Number:	PCC12-17213

Kiwa Electrical Compliance that the product detailed above has been tested to and meets the applied clauses of the below standards (see remarks section of R20-5317 for devaitons / exclusions):

EN 61010-1:2010

Signed on behalf of Kiwa Electrical Compliance

Name: Chris Jefferies

Job Title: Compliance Engineer

This certificate consists of 1 page.
Full details of the testing performed are given in Kiwa Electrical Compliance Test Report R20-5317
For deviations / exclusions see section III and Annex A of report.
This test certificate may be reproduced and shall only be reproduced in full.
The digital signature(s) used on the PDF certificate enable identification of the signatories.
The signatures tab can be used to confirm that no changes were made to this document since it was signed.
If the integrity of any reproduction of this test certificate is in doubt contact Kiwa Electrical Compliance for validation.

Kiwa Electrical Compliance
8 Woodfieldside Business Park
Pontllanfraith
Blackwood
NP12 2DG
United Kingdom
T +44 (0)14995 229219
www.kiwa.co.uk

CERTIFICATE

EMC Test Certificate

Date Issued: *1st February 2021*

Issue number: *2*

Certificate number: *20-5317-2*

Manufacturer:	Monmouth Scientific
Product name:	HFC/PCC
Description:	Powder Containment Unit
Model Number:	HFC/PCC-120
Serial Number:	PCC12-17213-1

A sample of the above product was tested and found to be compliance with the standards below.
Full results are retained on file at Kiwa Electrical Compliance.

EN 61326-1:2013
(Class A Emissions, Basic Immunity Environment)
EN 61000-3-2:2014
EN 61000-3-3:2013

Signed on behalf of Kiwa Electrical Compliance

G.Baker

Ginnie Baker
Quality Manager

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This amended certificate replaces all previous certificates with a lower issue number.

Kiwa Electrical Compliance
8 Woodfieldside Business Park
Pontllanfraith
Blackwood
NP12 2DG
United Kingdom
T +44 (0)1495 229219
www.kiwa.co.uk

ilac-MRA UKAS TESTING 2667

Explanation of Hazard Labels

	**DANGER** Indicate[s] a hazardous situation which, if not avoided, will result in death or serious injury.

	**WARNING** Indicate[s] a hazardous situation which, if not avoided, could result in death or serious injury.

	**CAUTION** Indicate[s] a hazardous situation which, if not avoided, could result in minor or moderate injury.

	**NOTICE** Best practice, housekeeping, security permissions and general notices which don't necessarily indicate a hazard.

Monmouth Scientific

Monmouth Scientific Limited
UK Headquarters
Monmouth House,
Peninsula Business Park,
Bridgwater,
Somerset,
TA6 4QB.
+44(0)1278 458090

www.monmouthscientific.co.uk
info@monmouthscientific.co.uk

5 year warranty* *Terms & Conditions Apply

British Design & Manufacture

nqa ISO 9001 QUALITY MANAGEMENT

UKAS MANAGEMENT SYSTEMS 015