INSTRUCTION MANUAL

EPURA G5

CABIN | ENGINE

Models

EPU-G5-M08
EPU-G5-C08
EPU-G5-M10
EPU-G5-M12
EPU-G5-M15
EPU-G5-B10

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The user is responsible for ensuring that the installation and operation of the system comply with all applicable local laws, standards, and regulations.

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Environmental Sensors and ISO 23875

The environmental sensors available with Epura units are monitoring tools intended to provide real-time tracking of selected in-cab air quality parameters. Their presence does not, by itself, constitute proof, certification, or a guarantee of compliance with ISO 23875. Compliance with ISO 23875 must be assessed based on the overall performance of the operator enclosure air quality control system, including, but not limited to, system design, integration, installation, maintenance, operating conditions, and completion of the applicable performance tests. These sensors may support a monitoring and verification process, but they do not replace a full system evaluation against the applicable requirements.

KEEP THESE INSTRUCTIONS

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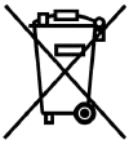
FOREWORD

Your Epura self-cleaning pre-filtration system was designed and manufactured in Saguenay Lac St Jean, Quebec by Propulsa Innovations. By using this revolutionary system, you will observe that the solutions offered by Propulsa Innovations provide efficient air filtration without the need for filter changes, reducing downtime, repetitive maintenance, and the environmental impact of heavy machinery. Additionally, it significantly improves air quality, thereby limiting health risks for workers.

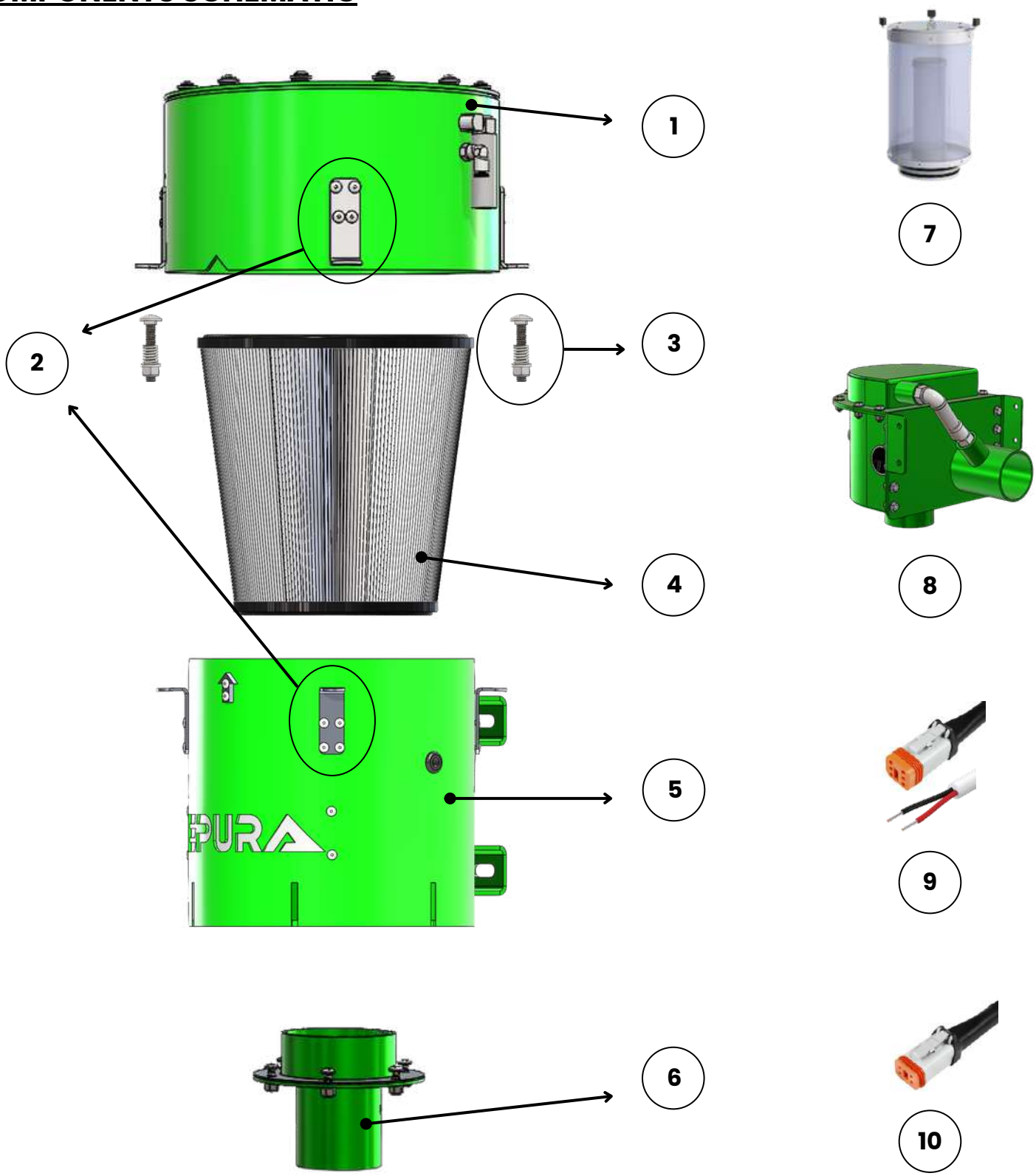
SAFETY INFORMATION

For safe and effective use of the Epura, please follow these precautions. Read all the instructions below before operating the device.

DANGER	
	The fan contains exposed rotating parts that pose a risk of entanglement. It should only be started once all the ducting is connected.
	Special attention must be paid to the rigidity of the installation to prevent the Epura system from falling during use.
	The weight of the Epura system is considerable. Technicians responsible for installation must follow best practices for handling heavy components.
	The systems must be installed at a level lower than the exhaust ducts to avoid the risk of gas intake and decreased efficiency.
	Do not dispose of it in regular trash. For proper disposal, take the Epura system to an authorized Universal Waste collection center or contact your local waste management facility for guidance.

GENERAL INFORMATION

COMPONENTS SCHEMATIC



11

12

13

SYSTEM COMPONENTS AND SKU NUMBERS

Refer to the numbered schematic on page 2.

N°	Description		EPURA 8"	EPURA 10"	EPURA 12"	EPURA 15"
1	Cleaning Head		EPU008-102-AS	EPU010-102-AS	EPU012-102-AS	EPU015-102-AS
2	Latch		EPU-LOQ-KIT			
3	Fastening Hardware for Latches		EPU-QUINC-LOQUET			
4	Filter	1" Pleats	EPU008-106-AS	EPU010-106-AS-1P	N/A	N/A
		2" Pleats	N/A	EPU010-106-AS	EPU012-106-AS	EPU015-106-AS
5	Housing		EPU008-101-AS	EPU010-101-AS	EPU012-101-AS	EPU015-101-AS
6	Adapter	3"	EPU-ADAPT-B4X3X1.5-3	EPU-ADAPT-B6X3X1.5-3	N/A	N/A
		4"	EPU-ADAPT-B4X4X1.5-4	EPU-ADAPT-B6X4X1.5-4	EPU-ADAPT-B8X4X1.5-4	N/A
		5"	N/A	EPU-ADAPT-B6X5X1.5-5	N/A	N/A
		6"	N/A	EPU-ADAPT-B6X6X1.5-6	EPU-ADAPT-B8X6X1.5-6	EPU-ADAPT-B10X6X1.5-6
		8"	N/A	N/A	EPU-ADAPT-B8X8X1.5-8	EPU-ADAPT-B10X8X1.5-8
		10"	N/A	N/A	N/A	EPU-ADAPT-B10X10X1.5-10
7	Carbon Filter		N/A	EPUFC10-100-AS	N/A	N/A
8	Fan	24V	EPU-VENT24V-100		N/A	N/A
		12V	EPU-VENT12V-100		N/A	N/A
9	Power Supply Wiring		EPU-CABLE-ALIM-10			
10	Interface Wiring		EPU-CABLE-INTERFACE			
11	Fan Wire		EPU-CABLE-VENT		N/A	N/A
12	Junction Cable		EPU-CABLE-6-4X3			
13	Interface		CON-IN3-V2E			

INCLUDED COMPONENTS

Depending on the system configuration, not all components are included in every Epura system. This section describes the components supplied for the Epura Cabin and Epura Engine configurations.

INCLUDED COMPONENTS TABLE – EPURA SYSTEMS

N°	Components	EPURA CABIN	EPURA ENGINE
1	Cleaning Head	X	X
2	Latch	X	X
3	Fastening Hardware for Latches	X	X
4	Filter	X	X
5	Housing	X	X
6	Adapter	X	X
7	Carbon Filter	X *Included only with systems equipped with the carbon option*	-
8	Fan	X	-
9	Power Supply Wiring	X	X
10	Interface Wiring	X	X
11	Fan Wire	X	-
12	Junction Cable	*	*
13	Interface	X	X

* The junction cable (Item 12) is included only when two or more Epura units are installed.

ENVIRONMENTAL MONITORING SENSORS

Important Notice : *Environmental sensors support in-cab air quality monitoring, but do not by themselves make the system compliant with ISO 23875.*

Epura units can be equipped with environmental sensors that allow real-time monitoring of air quality inside the cab. Depending on the system configuration, these monitoring options can display:

- carbon dioxide (CO_2) concentration;
- the concentration of fine airborne particles (PM4).

Fine particle measurements help monitor the operator environment and can support air quality monitoring as part of an approach aligned with ISO 23875 requirements. The other displayed measurements also provide real-time monitoring of ambient conditions inside the cab.

DESCRIPTION AND INTERPRETATION OF DISPLAYED MEASUREMENTS

CO_2 Sensor (ppm)

The CO_2 value indicates the concentration of carbon dioxide in the cab air. An increase in CO_2 may indicate insufficient ventilation or inadequate air exchange. The system uses the following thresholds to interpret the readings:

- **< 1000 ppm**: good air quality; no action required
- **1000 to 2500 ppm**: insufficient ventilation; increase airflow
- **> 2500 ppm**: high concentration; ventilate the cab immediately

PM4 Particle Sensor (µg/m³) - *Operational Monitoring Option - ISO 23875*

The PM4 reading represents the concentration of fine airborne particles suspended in the air. The higher the displayed value, the more fine dust is present in the air. This reading can be used to monitor in-cab air quality and the effectiveness of the filtration system. The system interprets the readings as follows:

- **< 25 µg/m³**: optimal air quality
- **25 to 50 µg/m³:** acceptable air quality
- **50 to 100 µg/m³**: filtration should be monitored
- **> 100 µg/m³**: check filter condition and schedule replacement

INSTALLATION

IMPORTANT INSTRUCTIONS – MATERIALS AND FASTENING

- For electrical connections, refer to the wiring diagram.
  All cables must be securely fastened and placed in corrugated wire looms to reduce the risk of damage.
- Use self-locking nuts or threadlocker for mechanical fastening.
- Use constant tension clamps or equivalent stainless steel fittings for securing the ducting.
- Use rigid ducting along with neoprene unions and elbows to connect the Epura to the air inlet. Any flexible piping used must be approved by Propulsa Innovations or one of its authorized distributors.
- The support must be equipped with stiffeners to prevent it from warping.
- Galvanized ducting cannot be used for cabin systems due to health risks to the operator.
- For the fabrication of the support, use steel or stainless steel with a minimum thickness of 5mm (3/16 inch). Steel supports must be painted to prevent corrosion. Universal Epura mounting supports can be obtained from Propulsa Innovations.

OVERVIEW DIAGRAMS

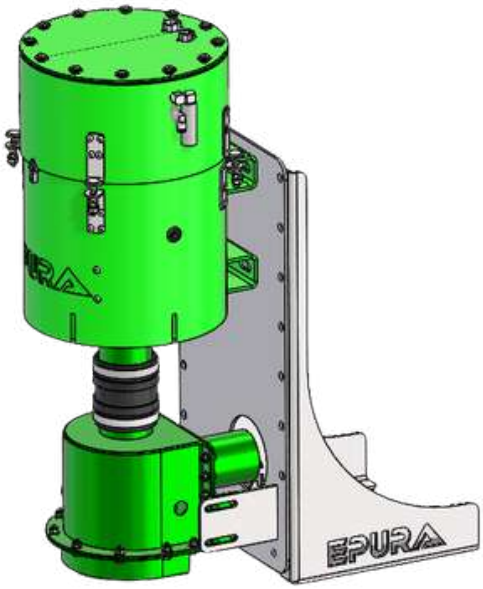


Figure 1
Epura Cabin

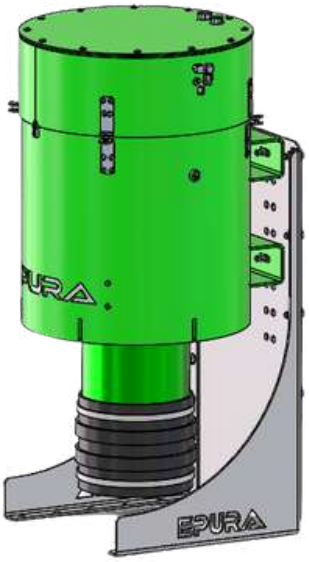


Figure 2
Epura Engine

Reminder: *Epura is a prefiltration system. The original manufacturer's filtration system must remain in place, and the Epura system must be installed upstream of it.*

EPURA ENGINE G5 – INSTALLATION STEPS

1. Remove the previously installed prefiltration system **(Figure 3)**.
2. Position the bracket in the identified location and secure it firmly **(Figure 4)**.
3. Install the adapter underneath the Epura. The sealing gasket should be placed between the adapter and the housing **(Figure 5)**.
4. Attach the Epura housing to the bracket **(Figure 6)**.
   Note: In some cases, the EPU-G5-M15 system must also be supported from underneath **(Figure 7)**
5. Connect the Epura to the engine air intake duct **(Figure 8)**.
6. Insert the filter into the Epura housing **(Figure 9)**.
7. Install the cleaning head on the housing and secure it. Refer to the latch fastening procedure on page 11 **(Figure 10)**.
8. Connect the pneumatic hose from the cleaning head to the adapter **(Figure 11)**.

Figure 3

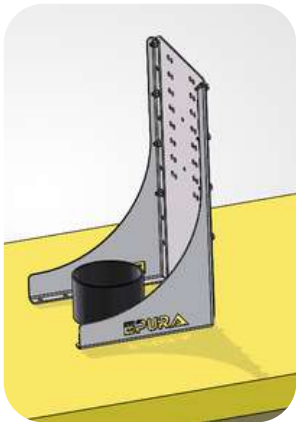


Figure 4

Figure 5

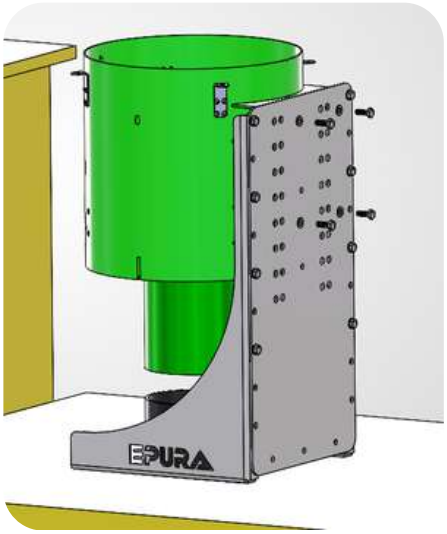


Figure 6

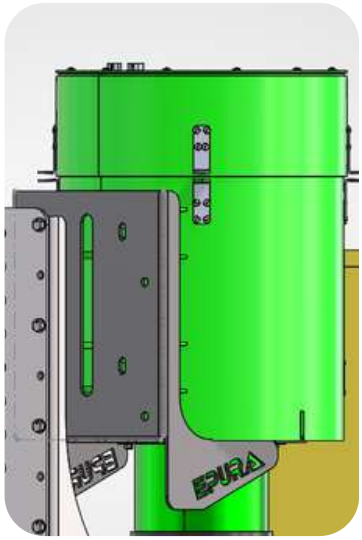


Figure 7

MECHANICAL INSTALLATION

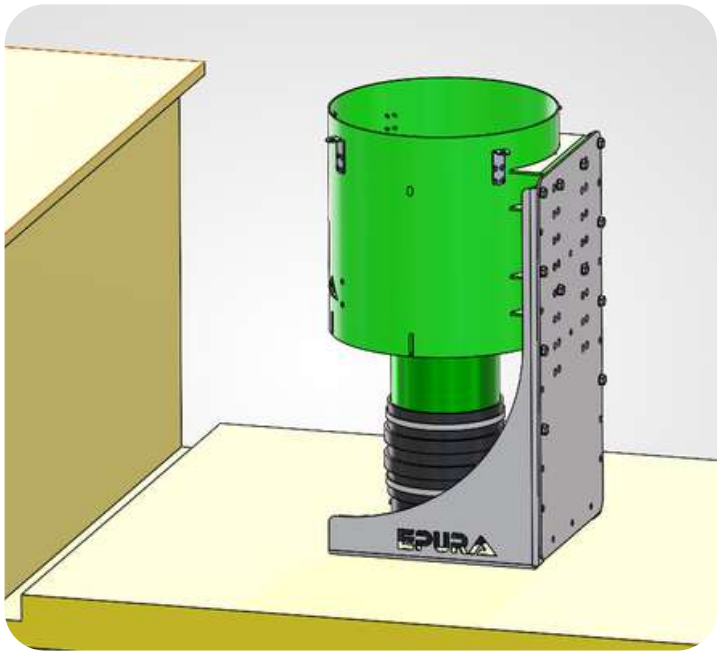


Figure 8

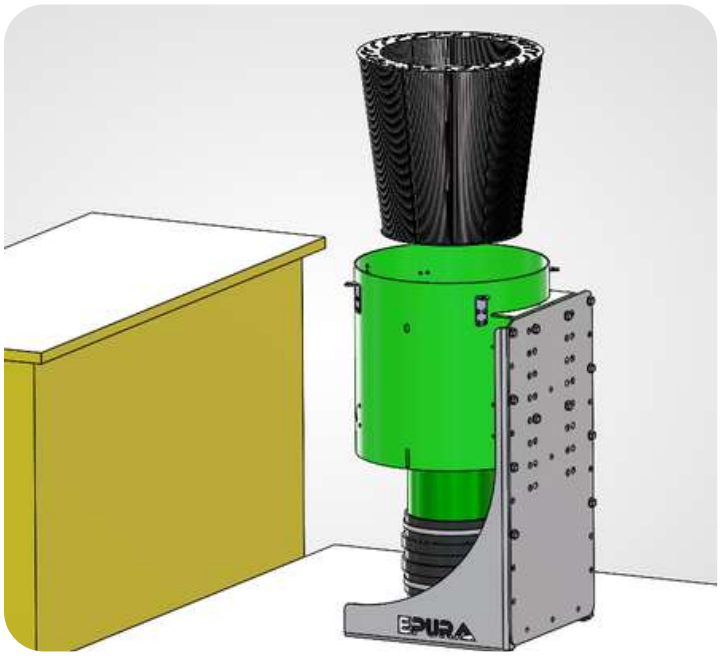


Figure 9

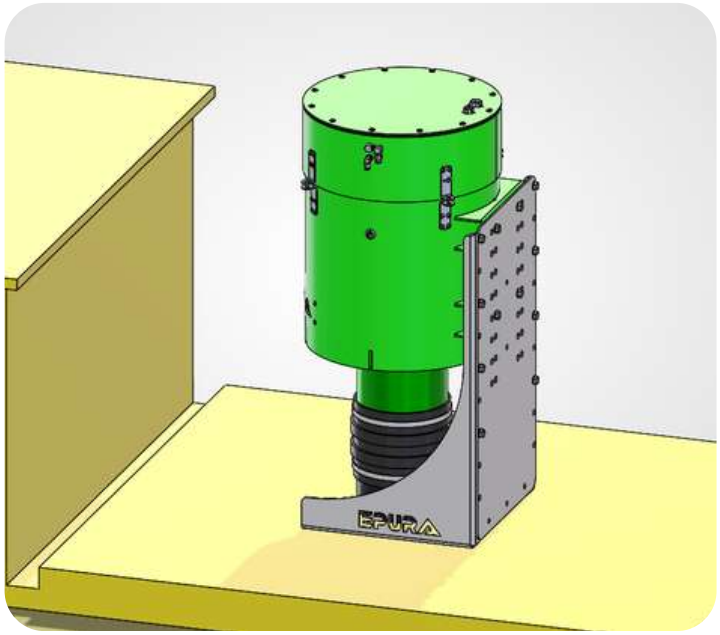


Figure 10

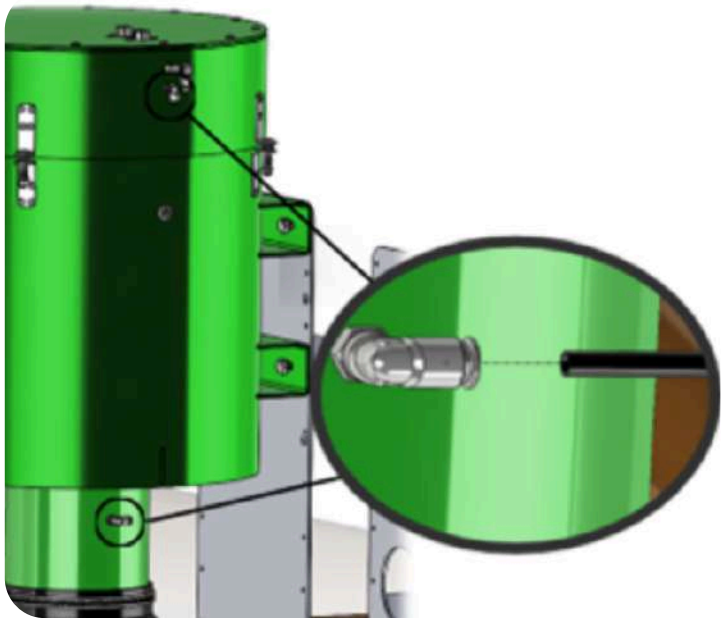


Figure 11

Reminder: *Epura is a prefiltration system. The original manufacturer's filtration system must remain in place, and the Epura system must be installed upstream of it.*

EPURA CABIN G5 – INSTALLATION STEPS

1. Remove the previously installed prefiltration system.
2. Position the bracket in the identified location and secure it firmly **(Figure 4)**.
3. Install the adapter underneath the Epura. The sealing gasket should be placed between the adapter and the housing **(Figure 5)**.
4. Attach the fan to the bracket **(Figure 12)**.
5. Connect the Epura to the fan **(Figure 13)**.
6. Connect the fan to the cabin air intake duct **(Figure 14)**.
7. Insert the filter into the Epura housing **(Figure 15)**.
8. Install the cleaning head on the housing and secure it. Refer to the latch fastening procedure on page 11 **(Figure 16)**.
9. Connect the pneumatic hose from the cleaning head to the adapter **(Figure 11)**.
10. Adjust the fan in accordance with the fan adjustment procedure described on page 17.

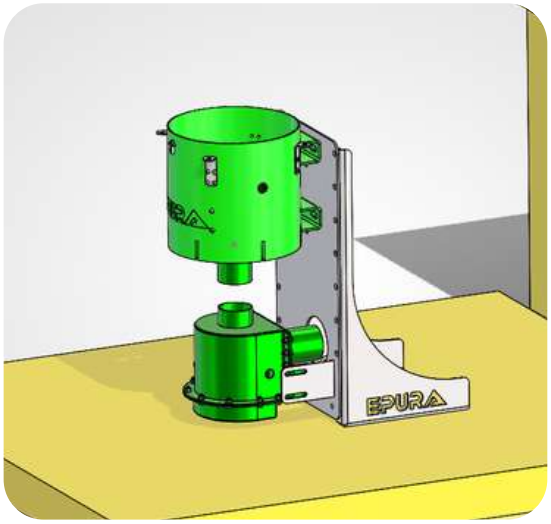


Figure 12

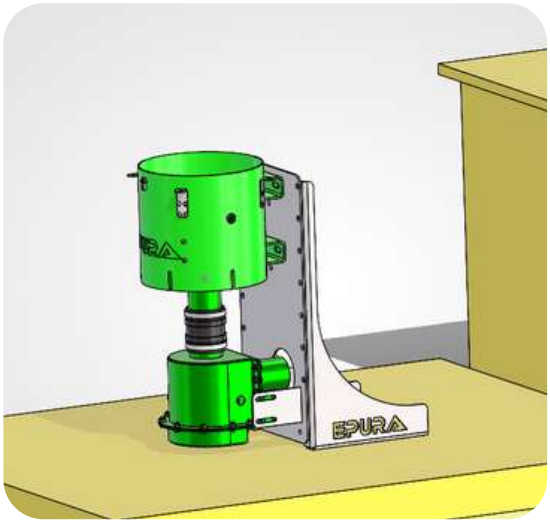


Figure 13

MECHANICAL INSTALLATION

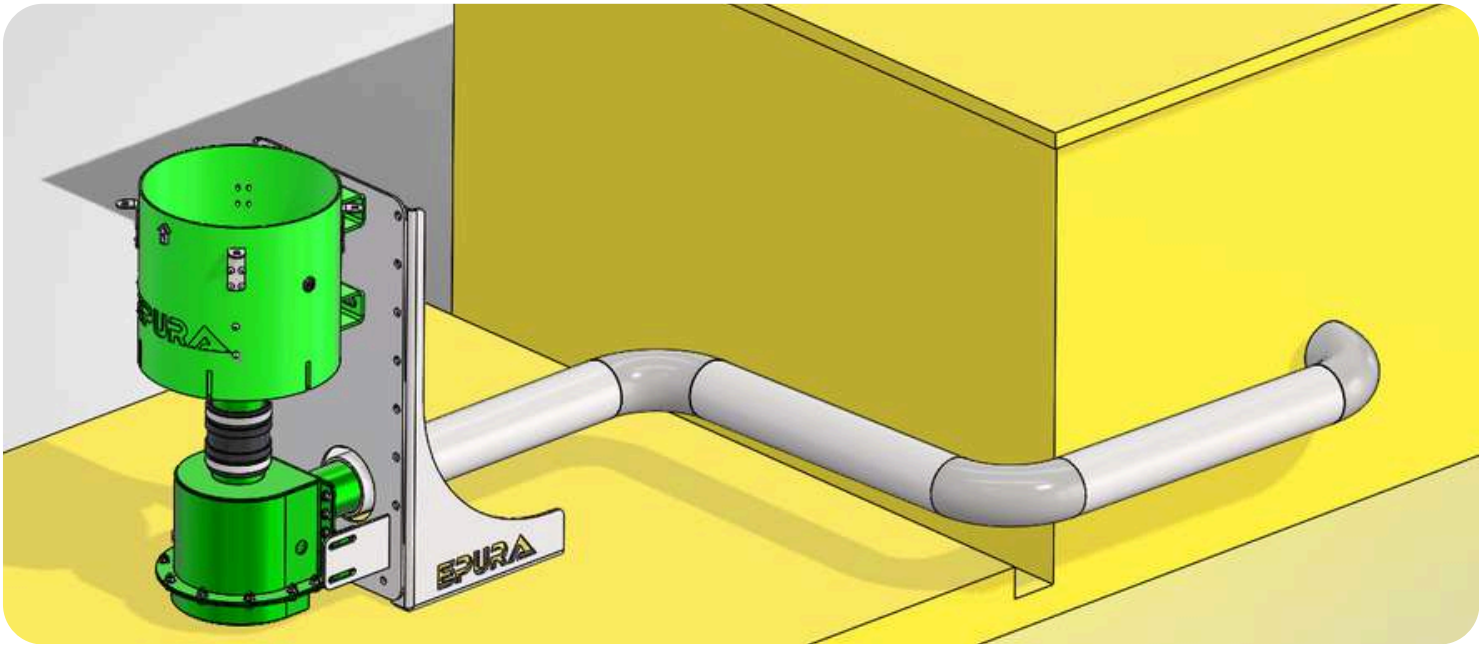


Figure 14

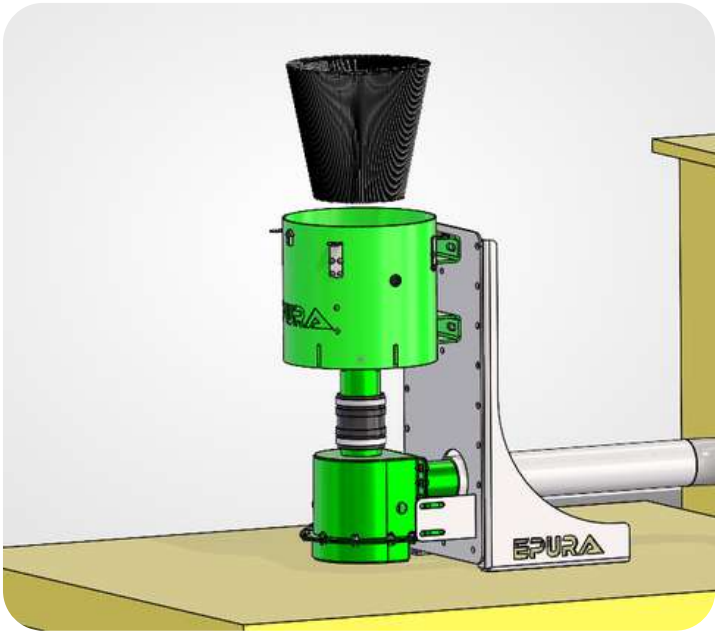


Figure 15

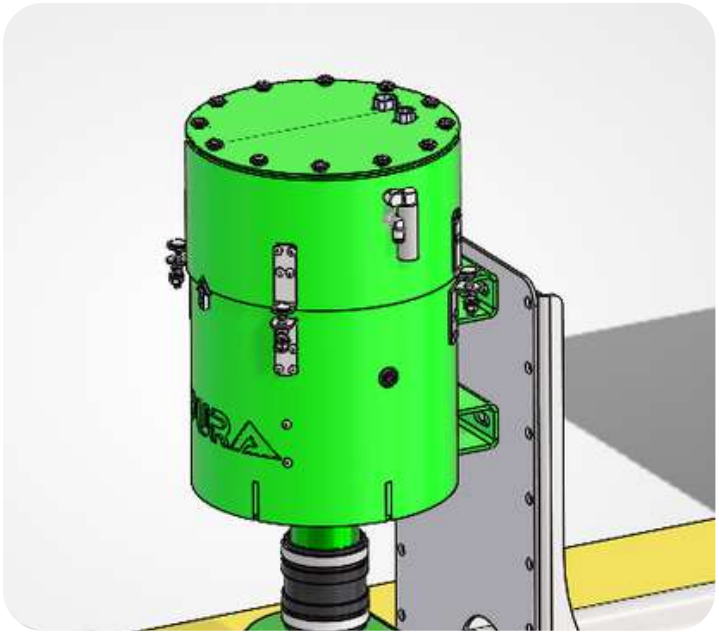


Figure 16

LATCH FASTENING PROCEDURE

1. Install the components in the order indicated in the diagram **(Figure 17)**.
2. Use the tightening template. Using the nut, tighten until a slight pressure is achieved on the template. Ensure that the washer is positioned at the tightening gauge limit. **(Figure 18)**.

Note: The latches must be installed following a cross-tightening sequence.

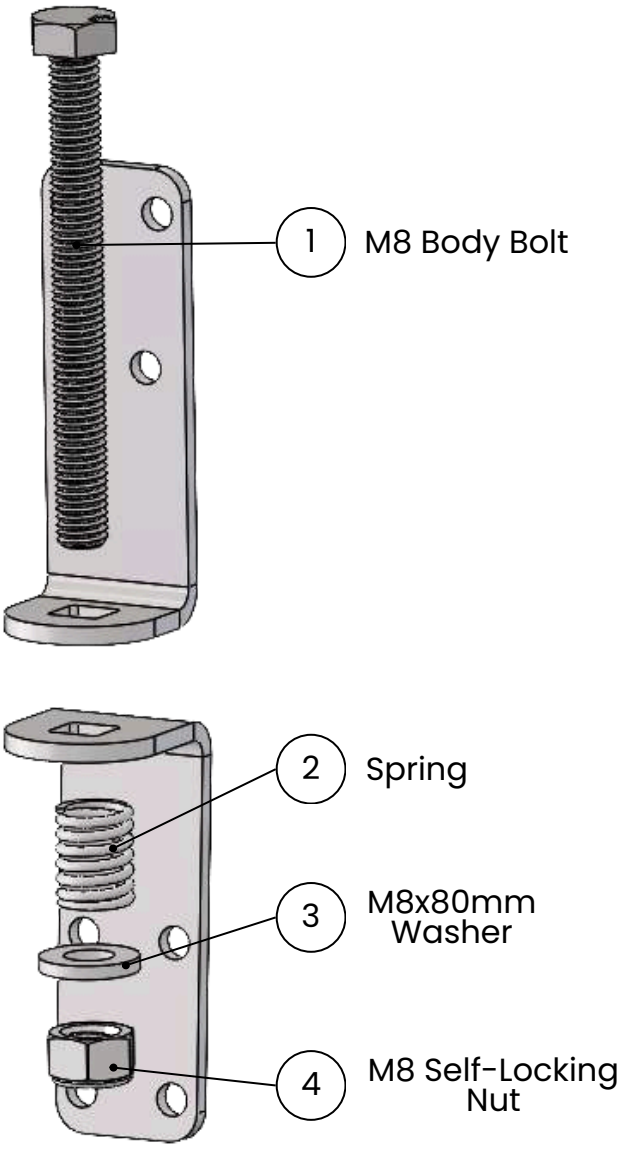


Figure 17

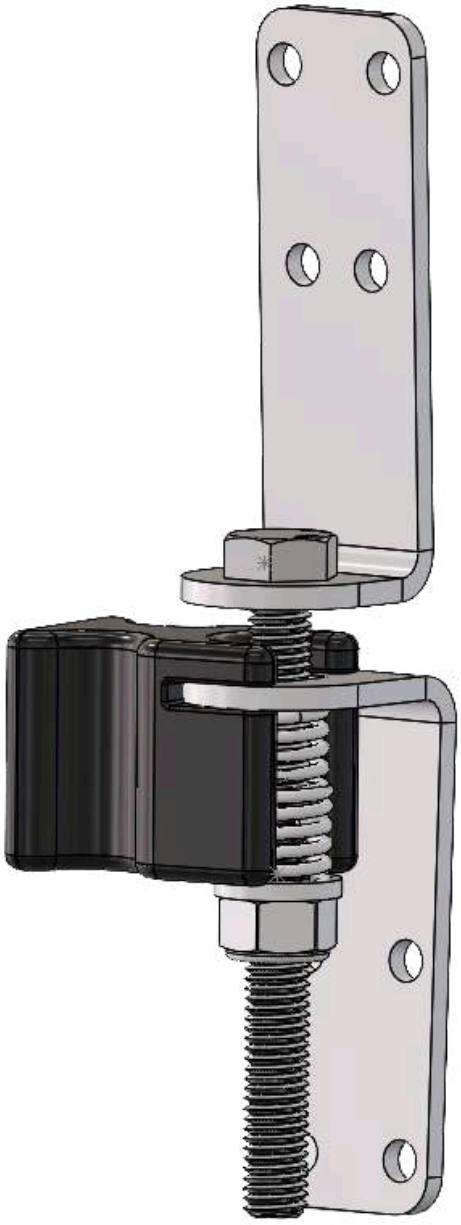
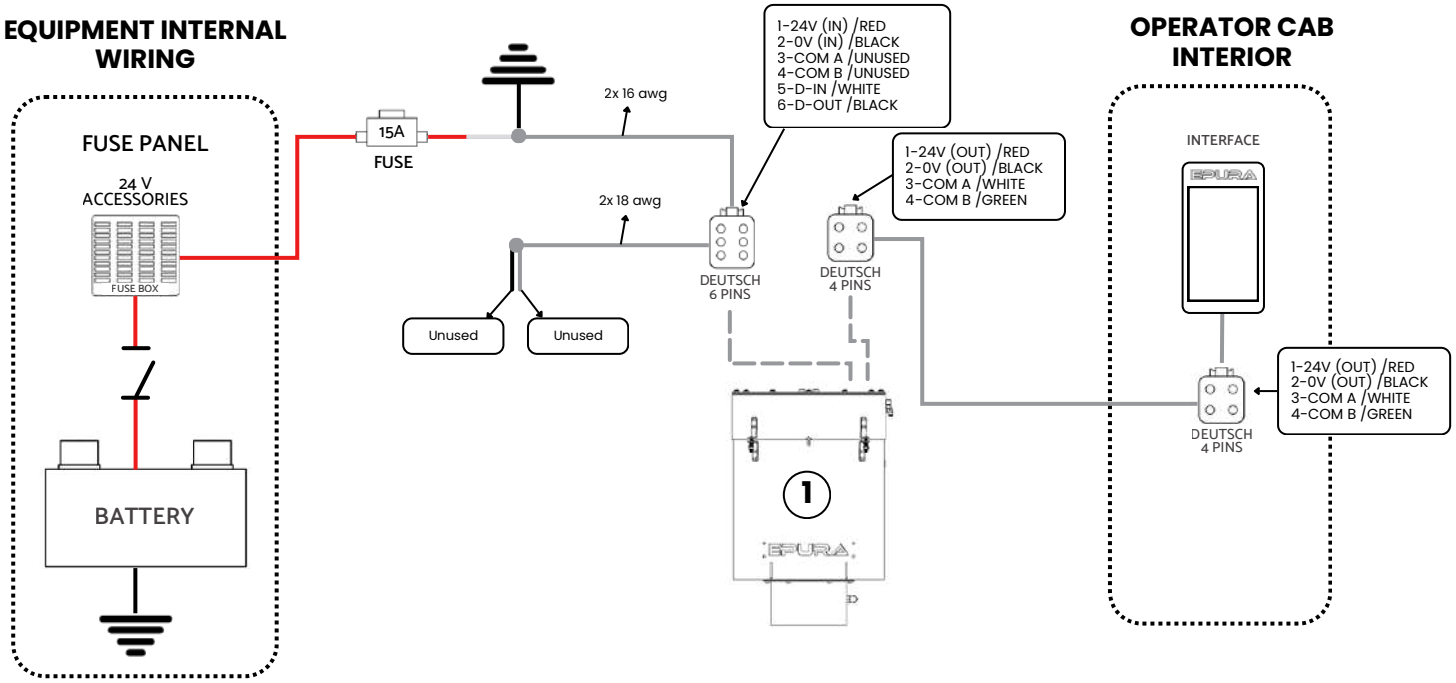


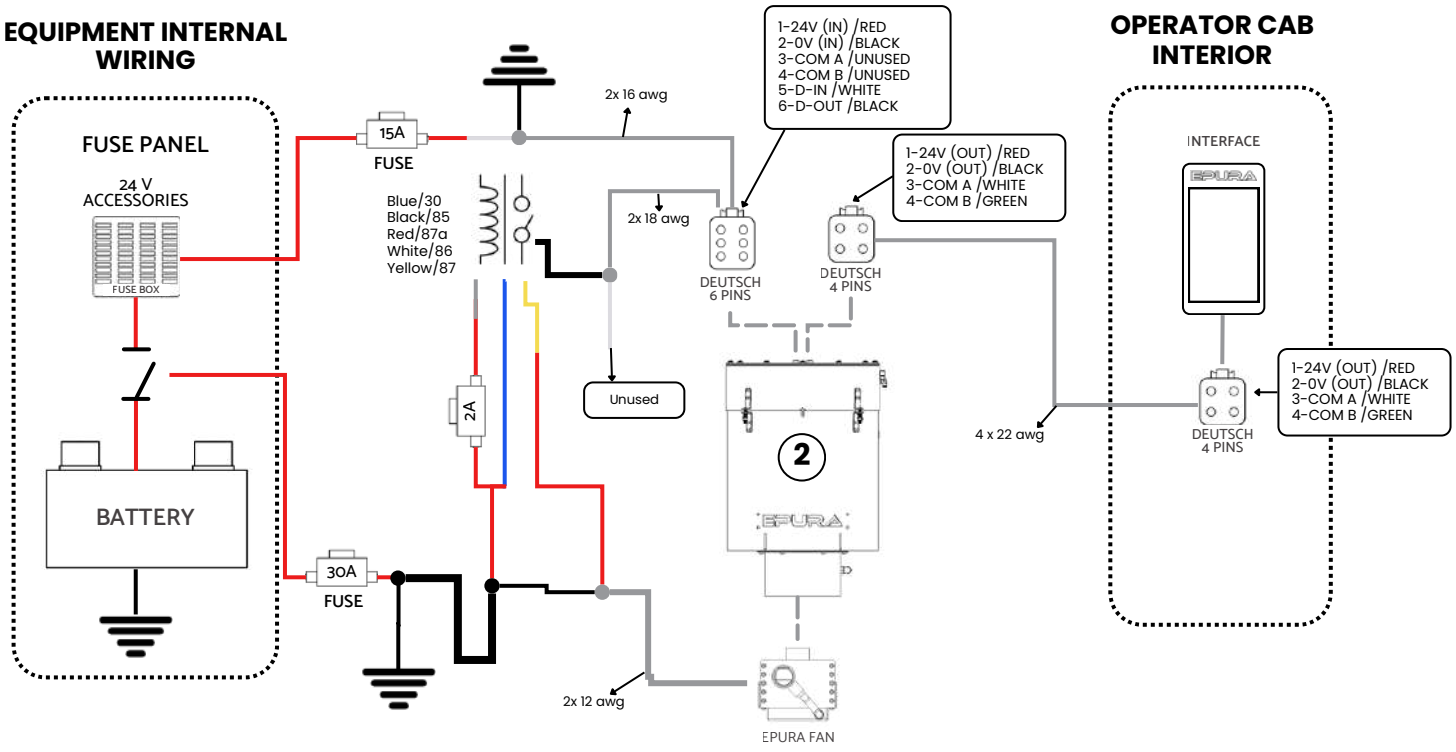
Figure 18

WIRING DIAGRAMS

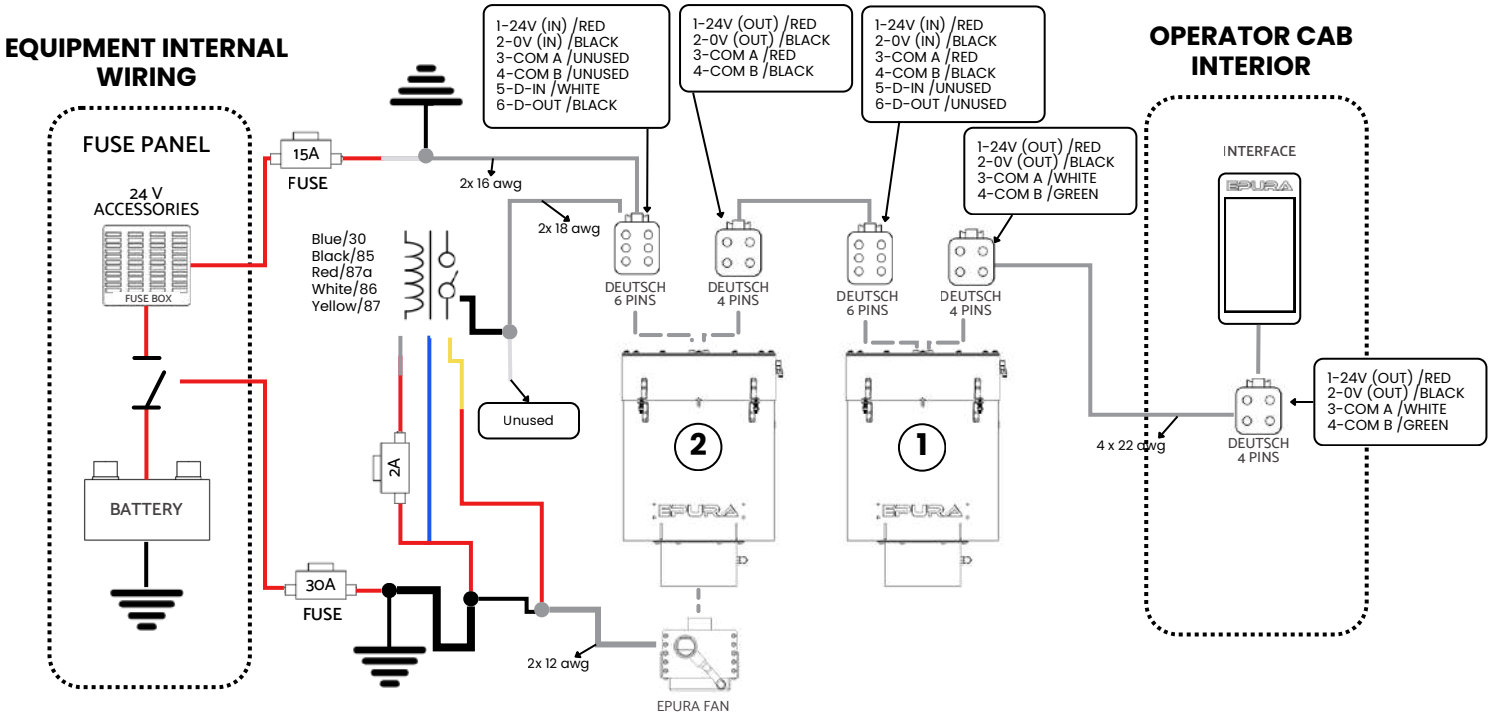
EPURA ENGINE SYSTEM - WIRING DIAGRAM



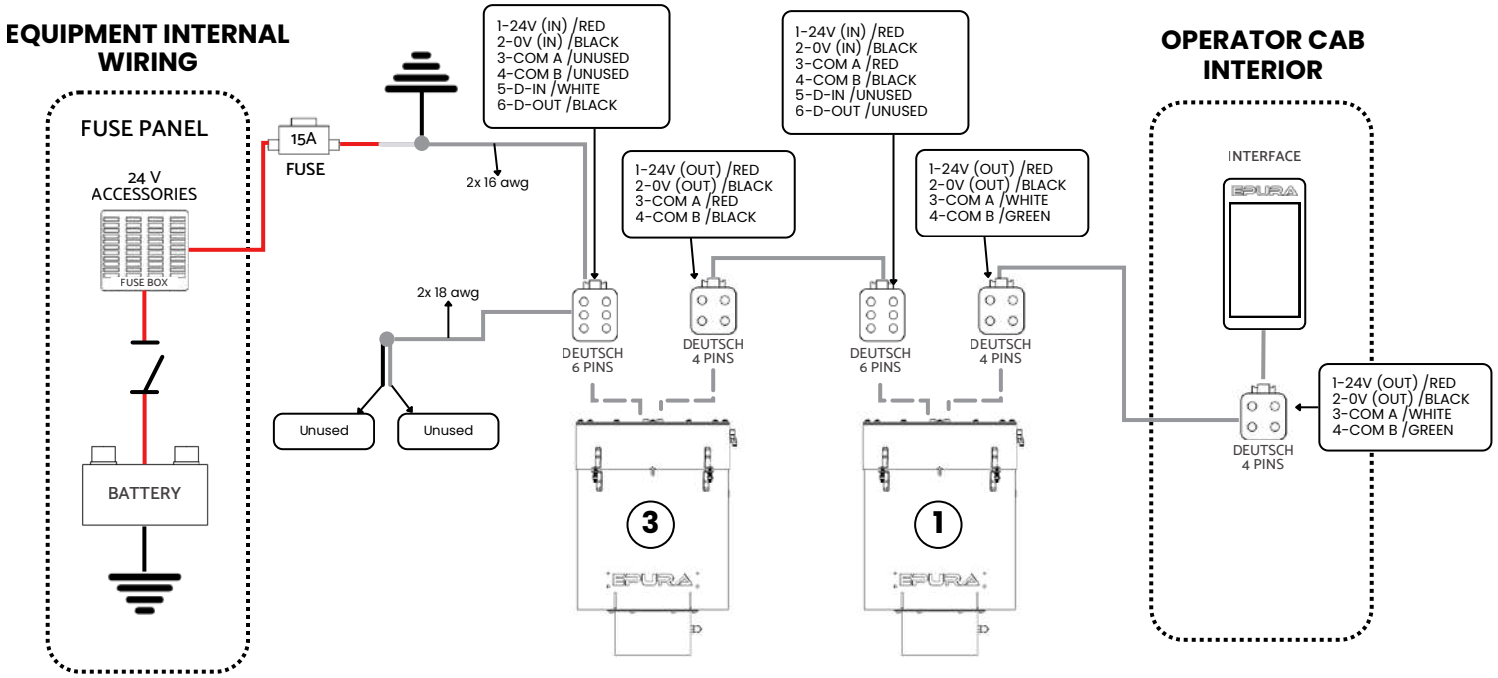
EPURA CABIN SYSTEM - WIRING DIAGRAM



EPURA ENGINE AND CABIN SYSTEM - WIRING DIAGRAM

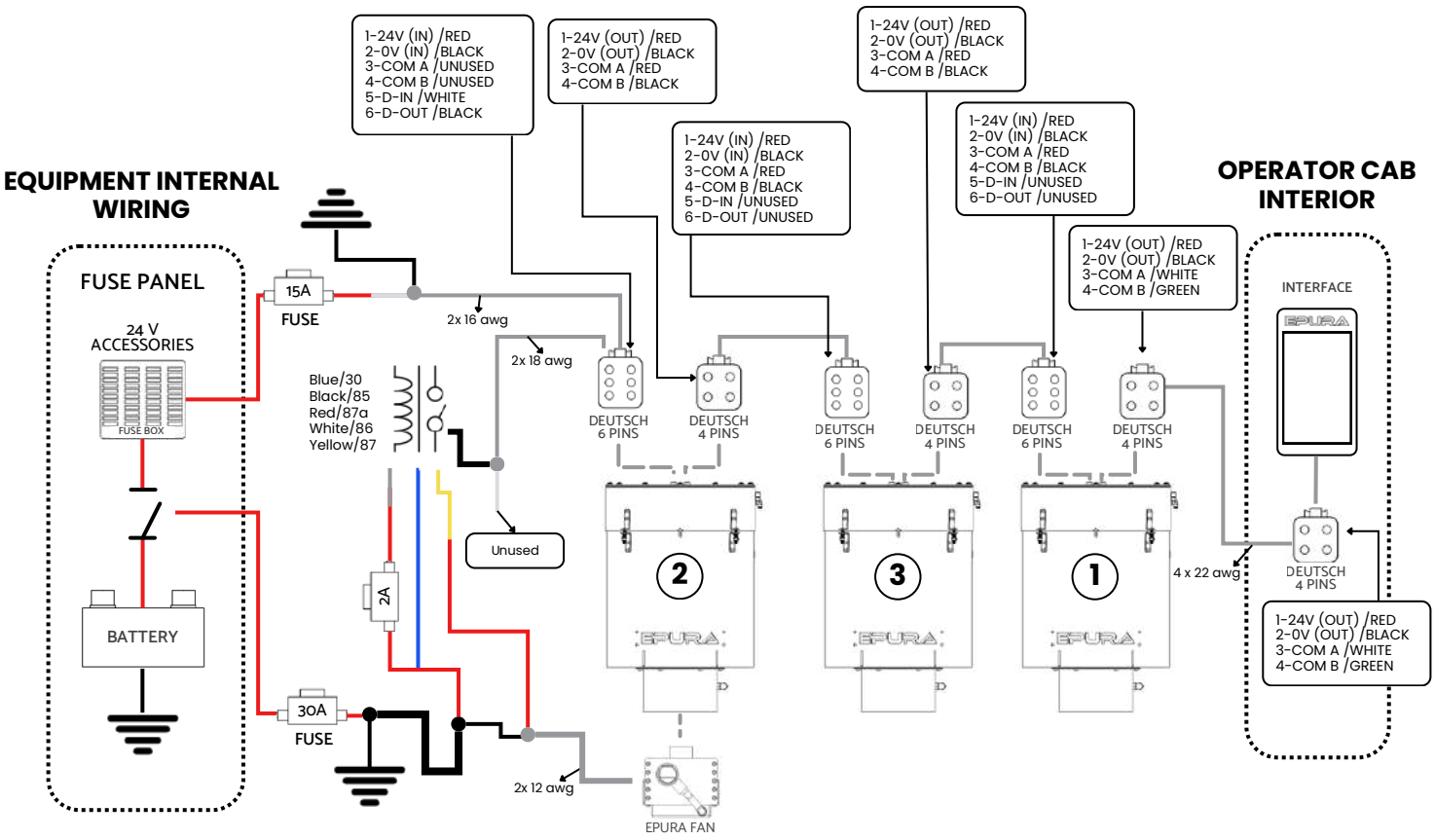


DUAL EPURA ENGINE SYSTEM - WIRING DIAGRAM



WIRING DIAGRAMS

DUAL EPURA ENGINE AND CABIN SYSTEM - WIRING DIAGRAM



MAINTENANCE CALENDAR

Required Action	Frequency						
	After 100 h	After 250 h	Every 500 h	Every 2,500 h	Every 5,000 h	Every 15,000 h	Bi-annually
Data analysis performed by Propulsa Innovations or its authorized distributor	X						
Visual inspection of the OEM filter		X	X	X			
Visual inspection of the electrical connectors		X	X				
Visual inspection of the piping		X	X				
Visual inspection of the structure	X		X				
Replacement of the Epura filter *(end of warranty)*					X		
Preventive replacement of the fan						X	
Calibration of the pressure sensor							X
Calibration of the CO_2 monitor*							X
Particle monitor cleaning	Cleaning frequency varies depending on the environment. Refer to the environmental sensors maintenance section.						

**The CO_2 monitor performs an auto-calibration based on an assumed ambient concentration of 400 ppm.*

DATA EXTRACTION PROCEDURE

Step 1 – Select the "Export" Button

1. From the Settings menu, access the Information submenu as shown on page 24.

2. Select the Export button to open the data transfer function. This feature allows you to transfer the data stored in the internal flash memory to the microSD card.

Step 2 – Remove the microSD Card

1. Gently press the card to release it using the spring-loaded mechanism. The microSD card is located on the right side of the interface **(Figure 19)**.

Step 3 – Extract and Save the Data

1. Insert the card into the computer's card reader (use an adapter if required) **(Figure 20)**.

2. Copy the required files to the computer. To create a .zip archive: right-click > "Compress to Zip" (or equivalent).

3. Send the data to the distributor by attaching the .zip file to a new email using your preferred email application.

Figure 19

Figure 20

CARBON REPLACEMENT PROCEDURE

Note: *It is important to perform this procedure in a clean area to prevent contamination of the air duct.*

Step 1 - Removal of the Epura Head
1. Disconnecting components : Unplug electrical connectors and pneumatic hose.
2. Disassembling the head : Remove the four (4) bolts securing the head to the casing. Then, lift and move the head.

Step 2 - Removal of the Carbon Housing
1. Pull the housing upwards to remove it. Rock the housing from side to side to facilitate extraction.

Step 3 - Replacement of the Carbon
1. To access the carbon, unscrew the six (6) cover screws and remove it.
2. Empty the saturated carbon and dispose of it according to current policies. Then, refill the housing with new carbon. Ensure the housing is adequately filled with carbon. It is recommended to shake or lightly tap the housing to optimize density.
3. To close the housing, replace the cover and screw in the six (6) screws.

Step 4 - Repositioning of the Carbon Housing
1. Lubricate the O-rings and insert the housing linearly until its base rests at the bottom.

Step 5 - Repositioning of the Epura Head and Components
1. Position the head on the housing, ensuring that no elements obstruct the installation.
2. Screw in the four (4) M10 bolts that connect the head to the casing. Refer to the latch fastening procedure on page 11.
3. Connect the pneumatic hose to the "push-lock" adapter. Reconnect electrical connectors to the cleaning head.

FAN ADJUSTMENT PROCEDURE

Step 1 - System Power-Up
1. To activate the Epura system, turn the equipment key to the "Accessory" position and wait for the cleaning cycle to complete and the fan to start running.

FAN ADJUSTMENT PROCEDURE *(CONTINUED)*

Step 2 - Cabin Pressure Measurement

1. Ensure that the door and windows are tightly closed and that there are no other air leaks.

2. Note the pressure indicated on the interface, as shown on page 22. For an Epura Cabin system, the standard internal cabin pressure gauge values are as follows: green between 0.08 and 0.2 in H_2O (0.02 to 0.05 kPa), and red below 0.08 in H_2O (0.02 kPa) or above 0.20 in H_2O (0.05 kPa).

3. Perform a cross-check using an external Pitot-type device to validate the pressure reading.

Step 3 - Fan Adjustment

1. Based on the pressure recorded in the previous step, increase or decrease the fan speed by adjusting the potentiometer. To access it, remove the eyelet on the fan housing **(Figure 21)**. The potentiometer is located beneath the eyelet **(Figure 22)**.

Figure 21

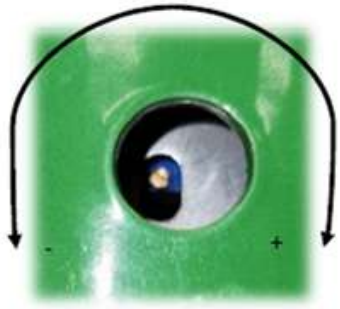


Figure 22

FUNCTIONAL VERIFICATION

1. Verify that each Epura in the installation completes its cleaning cycle as required.

2. Verify the interface by ensuring it lights up and displays each system on the screen.

3. If equipped with the Epura Cabin, verify that the fan starts at the end of the cleaning cycle.

4. If equipped with the Epura Cabin, ensure that the cabin pressure complies with current standards. Adjust if necessary.

5. If equipped with the Epura Engine, verify the engine pressure. Start the engine and reach maximum engine speed, then confirm that a pressure reading is displayed on the screen. The pressure should be positive (greater than 0) and low (typically below 3 po/H_20).

CALIBRATION AND MAINTENANCE OF ENVIRONMENTAL SENSORS

CO_2 Sensor (ppm)

Calibration of the CO_2 sensor, as well as any associated maintenance procedures, must be performed միայն by a technician accredited by Propulsa Innovations. If a calibration alert appears or if the displayed readings seem abnormal, contact Propulsa Innovations or an authorized technician.

An automatic alert may be generated if CO_2 calibration has never been performed or if it was last performed more than six months ago.

PM4 Particle Sensor (µg/m³)

The particle sensor contains an internal fan that draws in air. This fan may become clogged over time, especially in dusty environments. Cleaning must be performed at the frequency indicated in the following table:

Environment	Cleaning Frequency
Office / Clean area	Every 6 months
Workshop / Garage	Every 3 months
Dusty environment (e.g., sanding, grinding)	Monthly

Calibration of the CO_2 sensor and PM4 particle sensor, as well as any associated maintenance procedures, must be performed only by a technician accredited by Propulsa Innovations.

OPERATION AND USAGE

PRE-START CHECKS

Required Check	System Type		
	Epura Engine	Epura Cabin	Epura Cabin + Particle Monitor
Interface Powering	X	X	X
Automatic Filter Cleaning Cycle Activation	X	X	X
Filter Air Restriction Value Reading *(once the engine is started)*	X		
Cabin Pressure Display		X	X
CO_2 Level Reading		X	X
Particle Concentration Reading			X
Fan Activation*		X	X

**Directly linked to the cabin pressure. Cabin pressurization depends directly on fan activation, as the fan provides the airflow required to create positive pressure inside the cab.*

START-UP PROCEDURE

Before starting the Epura :

Ensure that all installation steps described in the Installation section of this manual have been correctly followed, as well as the pre-start checks outlined on page 20.

To start the engine and the cleaning cycle :

1. Turn the key to the accessory position (engine off)
2. Wait for the start prompt on the interface. represented by a green checkmark in a circle, as illustrated on page 22.
3. Start the vehicle.

USAGE

Refer to the Epura interface on page 22 to monitor the real-time pressure of the Epura filter and the cabin. The interface indicates the recommended cleaning cycle based on the color displayed on the air restriction level gauge.

Operate the Epura according to the following guidelines:

- **Green circle and checkmark** : Operate normally
- **Yellow triangle and exclamation mark**: Perform cleaning as soon as possible
- **Red octagon**: Stop and perform immediate cleaning

CLEANING CYCLE

EPURA ENGINE

Automatic Cleaning Cycle The automatic cleaning cycle is initiated when the equipment key is turned to the accessory position, with the engine remaining off. Once the cycle is complete, a prompt to start the equipment engine will be displayed on the interface.

Manual Cleaning Cycle The manual cleaning cycle can be initiated from the *real-time node details menu* by pressing the *Clean* button. This menu is accessed by selecting a gauge on an Epura system from the interface's home screen. A manual cleaning cycle cannot be initiated on an engine system while the engine is running.

EPURA CABIN

Automatic Cleaning Cycle The automatic cleaning cycle is triggered when the system reaches a predefined pressure threshold. It can also optionally be scheduled at a preset time interval.

Manual Cleaning Cycle The manual cleaning cycle can be initiated from the *real-time node details menu* by pressing the *Clean* button. This menu is accessed by selecting a gauge on an Epura system from the interface home screen.

INTERFACE - MAIN MENU

The main menu (**Figure 23**) displays the key measurements, performance indicators, and system information related to the Epura unit(s).

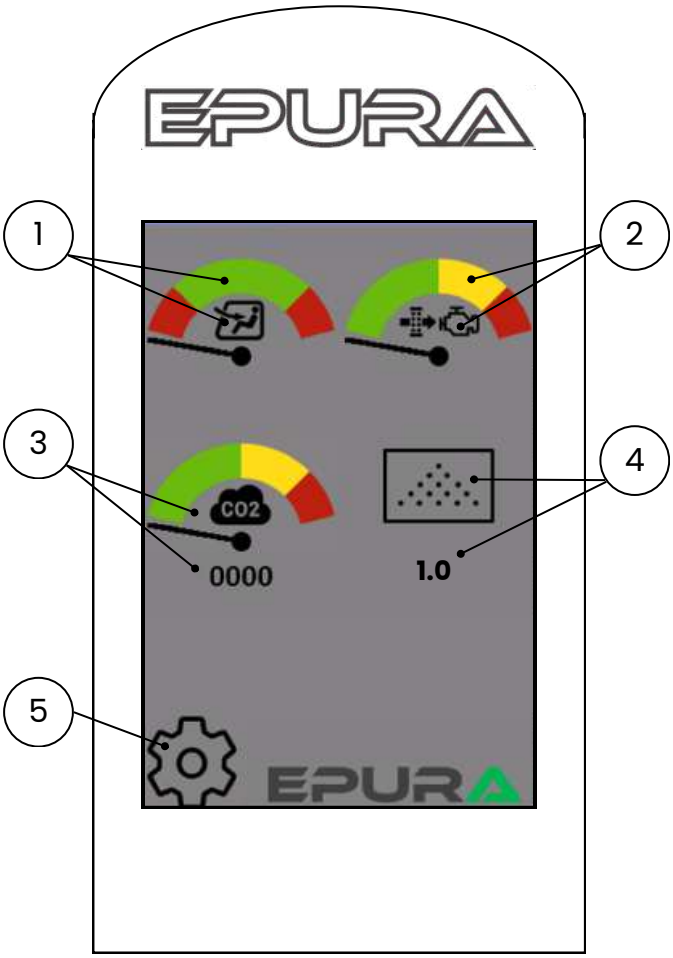


Figure 23

1 **Dial for an Epura Cabin system** - Standard values for the internal cabin pressure gauge:
Green : 0.08 to 0.20 in H_2O (0.02 kPa to 0.05 kPa)
Red : below 0.08 in H_2O (0.02 kPa) or above 0.20 in H_2O (0.05 kPa)

2 **Dial for an Epura Engine system** - Standard values for the air restriction gauge:
Green: up to 9 in H_2O (2.20 kPa)
Yellow: up to 19 in H_2O (4.70 kPa)
Red: above 19 in H_2O (4.70 kPa)

3 **Cabin CO_2 concentration gauge** -
Green: 360-1000PPM
Yellow: 1000-2500PPM
Red: 2500-5000PPM

4 **Particle concentration inside the cabin** - The value is displayed in parts per million (ppm).

5 **Settings menu** - Access to the various internal parameters.

ALARM

Green circle and checkmark - The system is operating correctly.

Yellow triangle and exclamation mark - Yellow alarm indicating immediate attention required.

Red octagon - Red alarm indicating immediate cessation of operations.

Do not start the engine – Displayed during the startup of an engine system, as well as when an attempt is made to initiate a cleaning cycle while the engine is running.

ENVIRONMENTAL MONITORING SENSORS

OPERATOR TABLE – SITUATION → ACTION

Situation	Immediate Action
CO_2 green (< 1000 ppm)	No action required; normal operation
CO_2 yellow (1000–2500 ppm)	Increase ventilation; check airflow
CO_2 red (> 2500 ppm)	Evacuate the area, ventilate, investigate the source
PM4 high (> 100 µg/m³)	Check the filters; schedule replacement
CO_2 calibration alert	Notify the technician for calibration
Sensor readings at 0	Notify the technician

NORMAL REFERENCE VALUES

Measurement	Normal Range	Unit
CO_2	400 – 1000	ppm
PM4	< 50	µg/m³

FACTORY SETTINGS CONFIGURATION

Epura systems are factory-configured with standard values. However, the pressure thresholds associated with the green, yellow, and red zones, the corresponding alarms, as well as the CO_2 concentration values and, depending on the system configuration, the particle concentration values, can be adjusted. Any modification to the factory settings must be carried out by a technician accredited by Propulsa Innovations.

INTERFACE – LIVE NODE DETAILS MENU

By pressing one of the systems from the home screen, you access the detailed view **(Figure 24)**.

This screen is used for diagnostics and displays technical values intended for technicians.

It also allows a manual cleaning cycle to be triggered by pressing the *Clean* button.

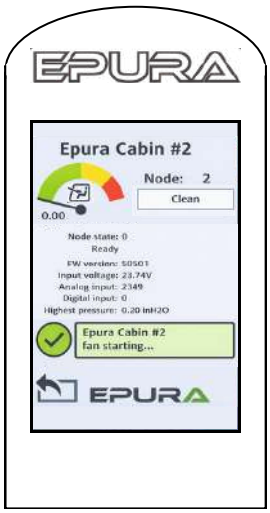


Figure 24

INTERFACE - SETTINGS MENU

The Settings menu **(Figure 25)** displays the configurable parameters of the interface and the Epura system.

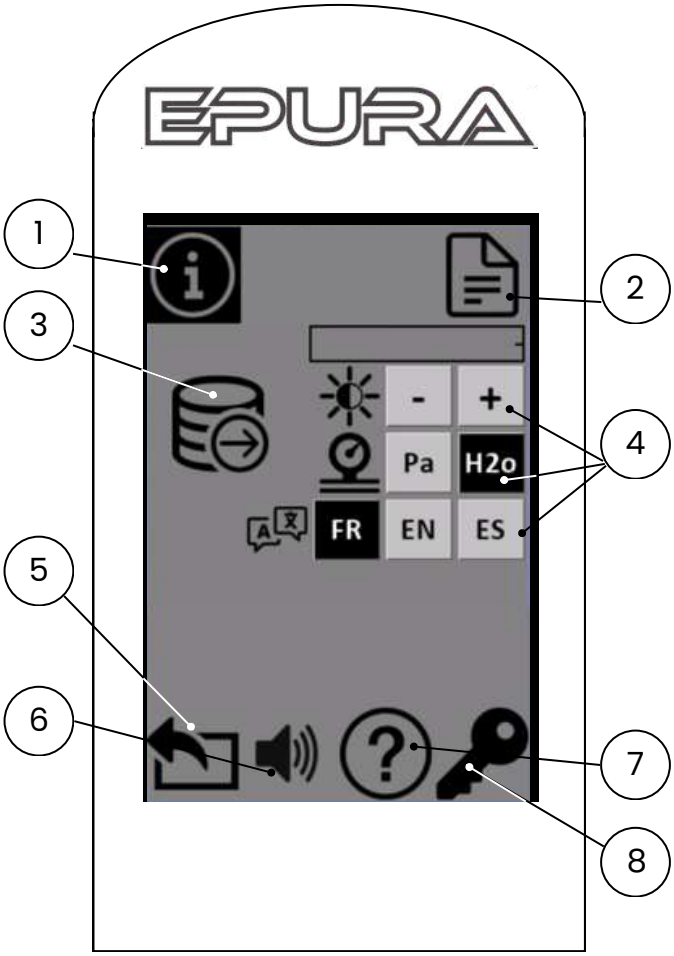


Figure 25

1. **Information Menu** – Submenu used to adjust screen brightness, select the measurement unit and language, and access the data log.
2. **System Menu** – Read-only access to the software version and the system's technical data.
3. **Export** – Allows transferring the data stored in the internal flash memory to the microSD card.
4. **General Settings** - Allows customization of certain interface settings, including:
   - screen brightness;
   - display language (French **FR**, English **EN**, Spanish **ES**);
   - pressure unit of measurement (**Pa** or **in H_2O**).
5. **Back** – Returns to the main menu.
6. **Alarm** – Allows turning off the alarm.
7. **Help** – Access to QR codes linking to instructional videos.
8. **Key** – System access level. This function is reserved for technicians.

TROUBLESHOOTING TABLE

Problem	Possible cause	Validation action	Corrective action
The Epura cleaning cycle is not functioning, and the interface does not light up.	The internal card or internal fuse of the cleaning head is damaged.	Follow the internal power supply circuit verification procedure on page 34.	Based on the diagnosis obtained, replace the fuse inside the internal card, the wiring, or the audio card.
	The external power supply circuit is faulty.	Follow the external power supply circuit verification procedure on page 33.	Based on the diagnosis obtained, replace the faulty power cable and/or the blown fuse.
The cleaning cycle of the Epura is not functioning, and the interface lights up.	The speaker in the cleaning head is damaged.	Follow the speaker verification procedure on page 36.	Replace the speaker. Contact the service department.
	The internal fuse of the cleaning head is blown.	Follow the internal power supply circuit verification procedure on page 34.	Replace the fuse.
	The internal wiring of the cleaning head is cut or damaged.	Follow the internal power supply circuit verification procedure on page 34.	Replace the damaged cable.
	The audio card is damaged.	Follow the internal power supply circuit verification procedure on page 34.	Replace the audio card.

TROUBLESHOOTING

Problem	Possible cause	Validation action	Corrective action
The Epura cleaning cycle is functioning, the interface is on, but displays nothing.	The interface wiring is damaged.	Check the condition of the interface wiring. Pay attention to signs of deterioration, such as cracks and breaks.	Replace the interface wiring.
	There is an error in the communication circuit of the Epura.	Follow the communication circuit verification procedure on page 35.	Based on the diagnosis obtained, replace the faulty component(s).
	There is corrosion present in the connectors of the interface wiring.	Perform a visual inspection of the connectors in the interface wiring. Pay attention to signs of corrosion, such as the presence of verdigris.	Clean the connectors showing signs of corrosion with the appropriate electrical contact cleaner.
	The software version installed on the audio card or interface card is not up to date.	Contact the service department.	Proceed with the installation of the appropriate software version. Contact the service department to obtain the installation procedure.

Problem	Possible cause	Validation action	Corrective action
The Epura cleaning cycle is functioning, the interface is on, but displays nothing. *(continued)*	The interface is faulty.	If the issue persists after checking the four possible causes mentioned earlier, the final cause could be the need to replace the interface. Please ensure that the other four possible causes of this issue have been thoroughly examined.	Replace the interface. Contact the service department to obtain the replacement procedure.
Dust particles are detected on the original equipment filter.	One or more leaks are present in the ducting connecting the Epura to the original equipment filter.	Perform a visual inspection of the ducting, checking for holes, loose clamps, and loose joints.	To seal the leaks detected in the ducting, use an appropriate sealing material. Tighten any loose clamps and ensure that all joints are securely fastened to prevent future leaks.
	One or more leaks are present in the housing of the original filter.	Perform a visual inspection of the cover, seal, and discharge port. Ensure that the latter is properly sealed.	Seal the discharge port as well as the cover.
	One or more leaks are present at the filter's sealing gasket.	Verify the latches.	Refer to the latch fastening procedure on page 11.

TROUBLESHOOTING

Problem	Possible cause	Validation action	Corrective action
The cleaning cycle is ineffective or very ineffective. Dust does not fall off during the cleaning cycle, and the level of air restriction remains high.	The equipment's engine is running during the cleaning cycle.	Ensure that the engine is turned off during the cleaning cycle.	Strictly follow the instructions described in the *Operation and Usage* section on page 20 of the manual and ensure proper training of Epura users.
	The filter has not accumulated enough dust particles.	Check the pressure on the interface when the engine is running. Refer to the interface section of the manual on page 22.	The cleaning efficiency is increased when the air restriction at the filter is higher.
	High humidity in the environment causes the filter to become moist, making the dust sticky.	Perform a visual inspection of the filter to detect any significant dust buildup. If there is clogged dust, please contact the service department for assistance.	Contact the service department to request a dust sampling at your site.
	The speaker coils are damaged.	Follow the speaker verification procedure on page 37.	Replace the speaker in the cleaning head. Contact the service department.

Problem	Possible cause	Validation action	Corrective action
The interface indicates that the cabin is not maintaining positive pressure.	The Epura interface is defective and/or out of calibration.	Perform a cross-check of the cabin pressure using a manometer. Ensure that the manometer is properly calibrated before taking measurements. Compare the obtained results with the interface readings. If the measurements differ, the pressure sensor is faulty.	Replace the pressure sensor. Refer to the electrical wiring diagrams on pages 11 to 13.
	The fan fuse is blown.	Check the fuse.	Replace the fuse.
	The fan speed is insufficient.	Check the cabin pressure when the fan is operating at low speed. Gradually increase the fan speed while closely monitoring the cabin pressure. An increase in pressure indicates that the issue was due to insufficient fan speed. If the pressure remains at zero, investigate other possible causes.	Adjust the fan using the adjustment screw, ensuring that the cabin pressure is set to the appropriate level. Refer to the fan adjustment procedure on page 17.

TROUBLESHOOTING

Problem	Possible cause	Validation action	Corrective action
The interface indicates that the cabin is not maintaining positive pressure. *(continued)*	The equipment's operator cabin has one or more air leaks.	Set the fan to its maximum speed and check the cabin pressure on the interface. If the pressure does not reach the target values, this indicates the presence of air leak(s).	Perform a visual inspection of the cabin. Pay particular attention to cracks, breakages, or other factors that could compromise the seal. Ensure that windows and doors are properly closed. Verify that the cabin is completely sealed.
	The fan is obstructed.	Before handling, ensure that the fan is disconnected from any electrical power source. Then, try to rotate the fan manually in the direction indicated on the blades. Confirm that the blades turn freely without any obstruction or blockage.	If the fan blades do not turn freely after manual inspection, proceed with replacing the fan. Contact the service department.

Problem	Possible cause	Validation action	Corrective action
The interface indicates that the cabin is not maintaining positive pressure. *(continued)*	The original equipment's ventilation system is set to "recirculation" mode or a similar mode, as indicated on the equipment's dashboard.	Perform a visual check of the equipment's dashboard. To verify, consult the ventilation settings displayed on the screen or the dashboard controls of the original equipment.	For more details, refer to the user guide provided with the original equipment. To disable "recirculation" mode, follow the specific instructions provided in the manual. Ensure users are trained on the correct operation of the equipment to prevent it from remaining in "recirculation" mode during use.
ENVIRONMENTAL MONITORING SENSORS			
The CO_2 concentration value is abnormally high following calibration.	The calibration was not performed correctly. The CO_2 sensor must be recalibrated.	-	Contact a technician accredited by Propulsa Innovations to perform the calibration.
The CO_2 sensor is not detected.	The interface is faulty or defective.	Contact the technician. If the CO_2 sensor is operating but is not detected, the interface is faulty.	Replace the interface.
CO_2 concentration readings are unstable (variations > ±50 ppm)	There is direct airflow on the interface or a hardware failure.	-	Protect the interface from direct airflow and check the connector.

TROUBLESHOOTING

Problem	Possible cause	Validation action	Corrective action
Particle concentration readings are abnormally low or erratic.	The particle sensor is clogged.	-	Contact a technician accredited by Propulsa Innovations to perform a cleaning cycle on the particle sensor.
The Epura interface is emitting abnormal noise.	The particle sensor's internal fan is obstructed.	-	Contact a technician accredited by Propulsa Innovations to perform a cleaning cycle on the particle sensor.
The particle sensor's PM4 values are no longer responding to environmental changes.	The particle sensor is clogged.	-	Contact a technician accredited by Propulsa Innovations to perform a cleaning cycle on the particle sensor.

EXTERNAL POWER SUPPLY CIRCUIT VERIFICATION

REQUIRED MATERIAL

- Multimeter

Figure 26

PROCEDURE

Step 1 - System Power Supply

1. Disconnect the Epura 6-pin power cable **(Figure 27)**.
2. Set the multimeter to 200 VDC.
3. Turn the system ON.
4. Connect the multimeter with the red probe on connector 1 and the black probe on connector 2.
5. Record the measured value:

- Minimum acceptable: 22 V
- Maximum acceptable: 26 V

6. Turn the system OFF.
7. Reconnect the power cable.

Figure 27

DIAGNOSTIC

If a fuse is blown according to the following diagnostic table, it is essential to identify the cause in order to apply the appropriate corrective measures.

	Normal	**Main fuse blown**	**Internal fuse of the Epura Cabin blown**	**Internal fuse of the Epura Engine blown**
Step 1	22-26 Vdc	0 Vdc	22-26 Vdc	22-26 Vdc
Step 2	22-26 Vdc	0 Vdc	0 Vdc	22-26 Vdc
Step 3	22-26 Vdc	0 Vdc	0 Vdc	0 Vdc

INTERNAL POWER SUPPLY CIRCUIT VERIFICATION

REQUIRED MATERIAL

- Multimeter
- Phillips #3 screwdriver
- Torque screwdriver
- Phillips #3 screwdriver bit

Figure 28

PROCEDURE

Step 1 - Opening the Cleaning Head

1. Disconnect the cables from the Epura.
2. Remove the 12 screws from the cover.
3. Carefully remove the cover, taking care not to damage the internal components.

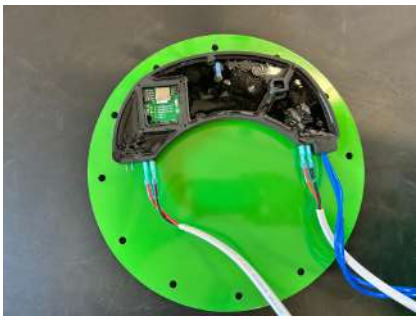


Figure 29
Connector Location - V2E Board

Step 2 - Checking the Audio Board

1. Turn on the power supply (Figure 29).
2. Check the fuse.
3. Check if the LED lights up.
4. Once completed, reinstall it, ensuring that the sealing gasket is properly in place.

Step 3 - Closing the Cleaning Head

1. Carefully reinsert the cover, taking care not to damage the internal components.
2. Replace the 12 screws for the cover.
3. Using the torque screwdriver, apply a torque of 20 lbs/in.
4. Reconnect the Epura cables.

DIAGNOSTIC

	Normal	Abnormal	Intervention
Step 2	LED lights up.	LED light remains off.	Replace the audio board.

COMMUNICATION CIRCUIT VERIFICATION

A communication issue is indicated by unusual interface behavior (incorrect display, missing data, slow response, or screen freeze). The objective is to identify and replace a faulty communication cable between the interface and the Epura system(s).

REQUIRED MATERIAL

- Interface
- Connection cable

Step 1 – Prepare a Known-Good Reference Cable

1. Use a cable whose functionality has been confirmed. This cable will be used to test communication between the interface and each Epura system.

Step 2 – Test Each System Individually

1. Connect the interface to the first Epura system using the reference cable.

2. Observe and note the interface behavior. If, after substitution, the interface operates normally, the original cable is suspect. Proceed to Step 3 to confirm.

3. Repeat the procedure for each Epura system, one at a time.

Step 3 – Identify the Faulty Cable

1. Reinstall the original cable without changing any other parameters.

- *If the anomalies reappear*: the original cable is confirmed defective. Proceed to Step 5.
- *If not*: move on to the next cable/segment (return to Step 2).

Step 4 – Networks with Multiple Epura Systems

1. Repeat steps 2 and 3 for each connection (one cable at a time) until the faulty cable or cables are identified.

Step 5 – Replacement

1. Replace any cable confirmed to be defective with a new cable or with the reference cable. Secure the connectors and ensure proper locking.

SPEAKER VERIFICATION

Figure 30

REQUIRED MATERIAL

- Torque Screwdriver.
- Phillips #3 Screwdriver Bit.
- Phillips #3 Screwdriver.
- Multimeter.

PROCEDURE

Step 1 - Opening the Cleaning Head

1. Disconnect the cables from the Epura.
2. Remove the 12 screws from the cover.
3. Carefully remove the cover, taking care not to damage the internal components.

Step 2 - Disconnecting the Speaker

1. Disconnect the connectors on each side of the speaker.

Step 3 - Check Coil Resistance

1. Set the multimeter to 200 Ω.
2. Connect the multimeter so that the red probe is on the red terminal and the black probe is on the black terminal **(Figure 31)**.
3. Verify the reading :

- The minimum acceptable value is 1.8 Ω.
- The maximum acceptable value is 2.2 Ω.

4. Repeat steps 3.1 to 3.3 for both coils.

Figure 31

Step 4 - Reconnect the Speaker

1. Reconnect all wires according to your notes/photos.

SPEAKER VERIFICATION *(CONTINUED)*

Step 5 - Closing the Cleaning Head

1. Carefully reinsert the cover, taking care not to damage the internal components.

2. Using the screwdriver, secure the 12 screws for the cover.

3. Using the torque screwdriver, apply a torque of 20 lbs/in.

4. Reconnect the cables to the Epura.

DIAGNOSTIC

	Normal	**Abnormal**	**Intervention**
Step 2	Protective sheath intact.	Damaged protective sheath.	Replace damaged cables.
Step 3	Reading on the multimeter between 1.8 and 2.2 Ω.	Reading on the multimeter: OL	Replace the speaker.

WARRANTY

LIMITED WARRANTY – PROPULSA INNOVATIONS

THIS WARRANTY WILL BE VOID IF ANY COMPONENT OF THE EPURA SYSTEM HAS BEEN OPENED OR OTHERWISE MODIFIED WITHOUT PRIOR WRITTEN APPROVAL FROM PROPULSA INNOVATIONS.

THE ORIGINAL FILTRATION AND PROTECTION SYSTEMS OF THE EQUIPMENT MUST REMAIN INSTALLED AND BE MAINTAINED AND OPERATED IN ACCORDANCE WITH THE EQUIPMENT'S OFFICIAL OPERATION MANUAL. ALL ALERTS AND NOTIFICATIONS FROM THE ORIGINAL SYSTEM MUST BE ACKNOWLEDGED AND ADDRESSED APPROPRIATELY.

What is covered :

All EPURA products supplied by Propulsa Innovations are covered by a limited warranty against defects in materials or workmanship. To make this warranty effective, installation of the system must be made accordingly to PROPULSA INNOVATIONS' recommendations. Propulsa Innovations reserves the right to verify the validity of any warranty claim and may request supporting documentation or inspection prior to authorizing service or replacement.

If a Propulsa Innovations product fails due to a verified defect in materials or workmanship during the applicable limited warranty period, Propulsa Innovations will replace the defective product, subject to the conditions outlined in this limited warranty.

This warranty is non-transferable and applies exclusively to the original purchaser.

Warranty Period :

EPURA products are covered by a limited warranty for a period of three (3) years from the date of approval of the commissioning report. This limited warranty does not cover :

- EPURA filters
- failures resulting from incorrect or non-approved uses
- damage caused by improper installation (including installations not performed by an installer assigned by Propulsa Innovations), incorrect or abnormal use, misuse, negligence, accidents, or unauthorized repair

- failures due to any causes not directly related to a defect in materials or workmanship
- costs associated with removal or reinstallation of any component
- any product that has been altered or modified in any way, including unauthorized repair attempts (such attempts will VOID this limited warranty); and
- use of any service or repair parts other than those provided by Propulsa Innovations and/or its authorized partners.

Filters warranty:

The filters of the EPURA systems are covered by a limited warranty based on their operating time and utilization:

- G5 filters: 5,000 hours of effective cleaning cycles.

If filters fail to reach these milestones, they will be replaced following a thorough analysis of the operating data. Systems with active carbon are excluded from this warranty period.

Propulsa Innovations' Responsibility:

In the event that a defect in materials or workmanship is identified during the warranty period, and is not the result of misuse or other excluded causes, Propulsa Innovations will, at its sole discretion, provide new replacement parts or approved repair parts, or assembled components necessary to correct the defect. Propulsa Innovations reserves the right to refund the purchase price instead of providing a replacement or repair. The replacement product will either be shipped directly to the customer or made available for pickup at a local dealer designated by Propulsa Innovations, at Propulsa Innovations' discretion. Items replaced under this warranty become the property of Propulsa Innovations and must be returned in their original condition.

WARRANTY

User Responsibility:

To initiate a warranty claim, please contact Propulsa Innovations Technical Support at 1-418-579-2001 or info@propulsa.ca as soon as an issue is identified. Our team will assess the situation and determine the appropriate next steps, which may include repair or replacement.

In the case of a replacement, the EPURA system must be returned to Propulsa Innovations. Shipping costs for the return are the responsibility of the customer.

EPURA DIMENSION

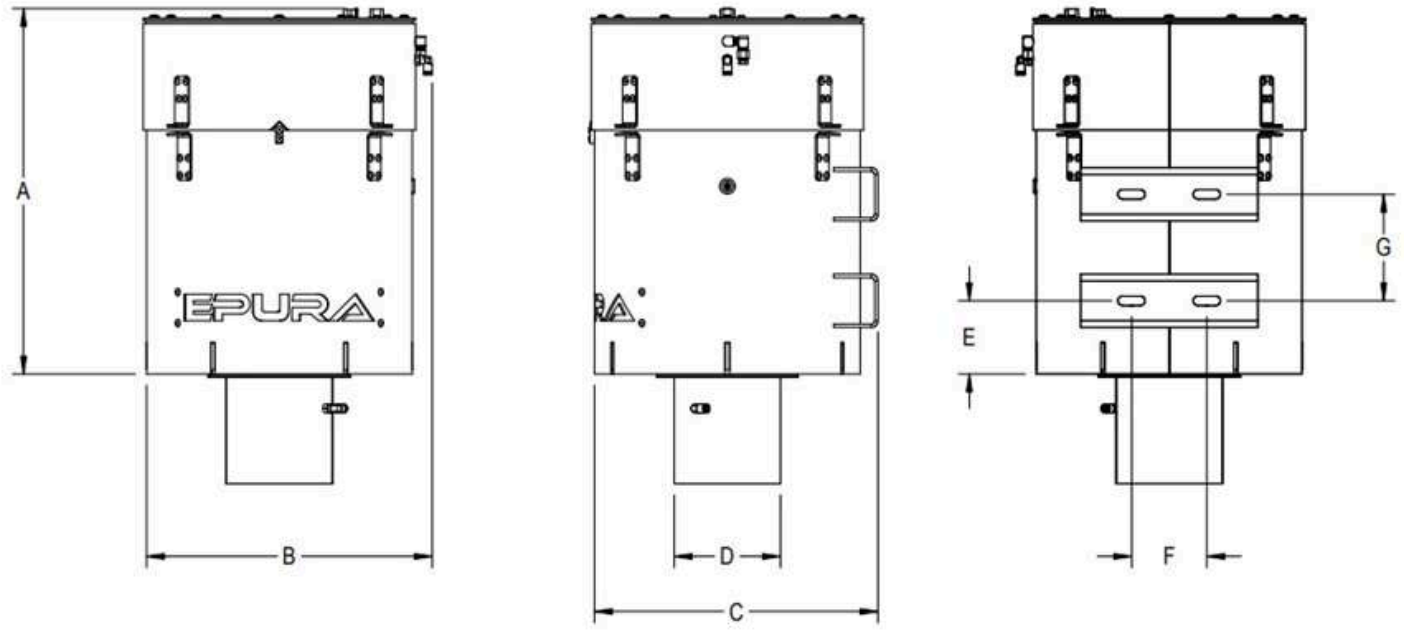


Figure 32

Model	Weight		A mm (in)	B mm (in)	C mm (in)	D mm (in)	E mm (in)	F mm (in)	G mm (in)
	kg	lb							
EPU-G5-M08	15	33	422 (16-5/8)	302 (11-7/8)	324 (12-3/4)	102 (4)	64 (2-1/2)	95 (3-3/4)	152 (6)
EPU-G5-M10	24	53	523 (20-5/8)	391 (15-3/8)	410 (16-1/8)	152 (6)	105 (4-1/8)	108 (4-1/4)	152 (6)
EPU-G5-M12	29	64	572 (22-1/2)	443 (17-7/16)	464 (18-1/4)	203 (8)	111 (4-3/8)	152 (6)	203 (8)
EPU-G5-M15	37	82	650 (25-1/2)	527 (20-3/4)	546 (21-1/2)	254 (10)	149 (5-7/8)	203 (8)	203 (8)
EPU-G5-C08	22	48	422 (16-5/8)	302 (11-7/8)	324 (12-3/4)	76 (3)	64 (2-1/2)	95 (3-3/4)	152 (6)
EPU-G5-B10	30	67	523 (20-5/8)	391 (15-3/8)	410 (16-1/8)	76 (3)	105 (4-1/8)	108 (4-1/4)	152 (6)

CHARACTERISTICS

FAN DIMENSION

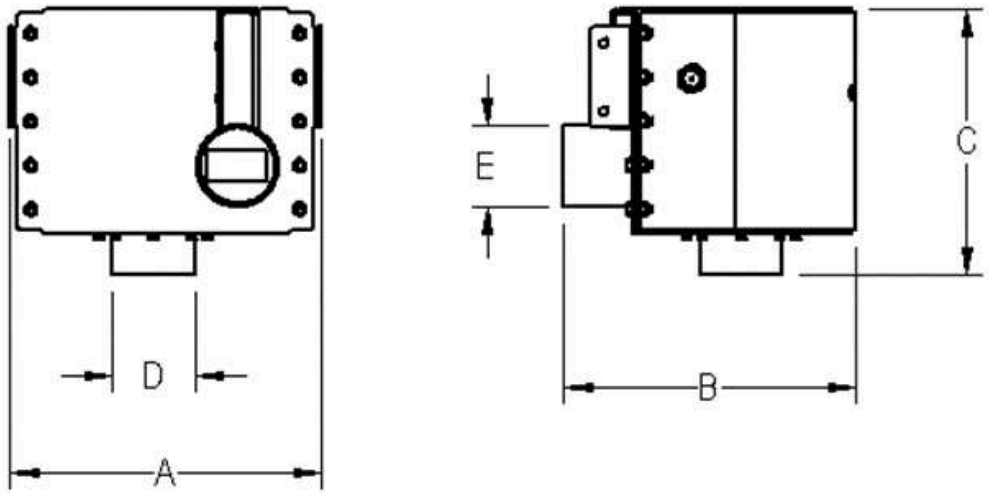


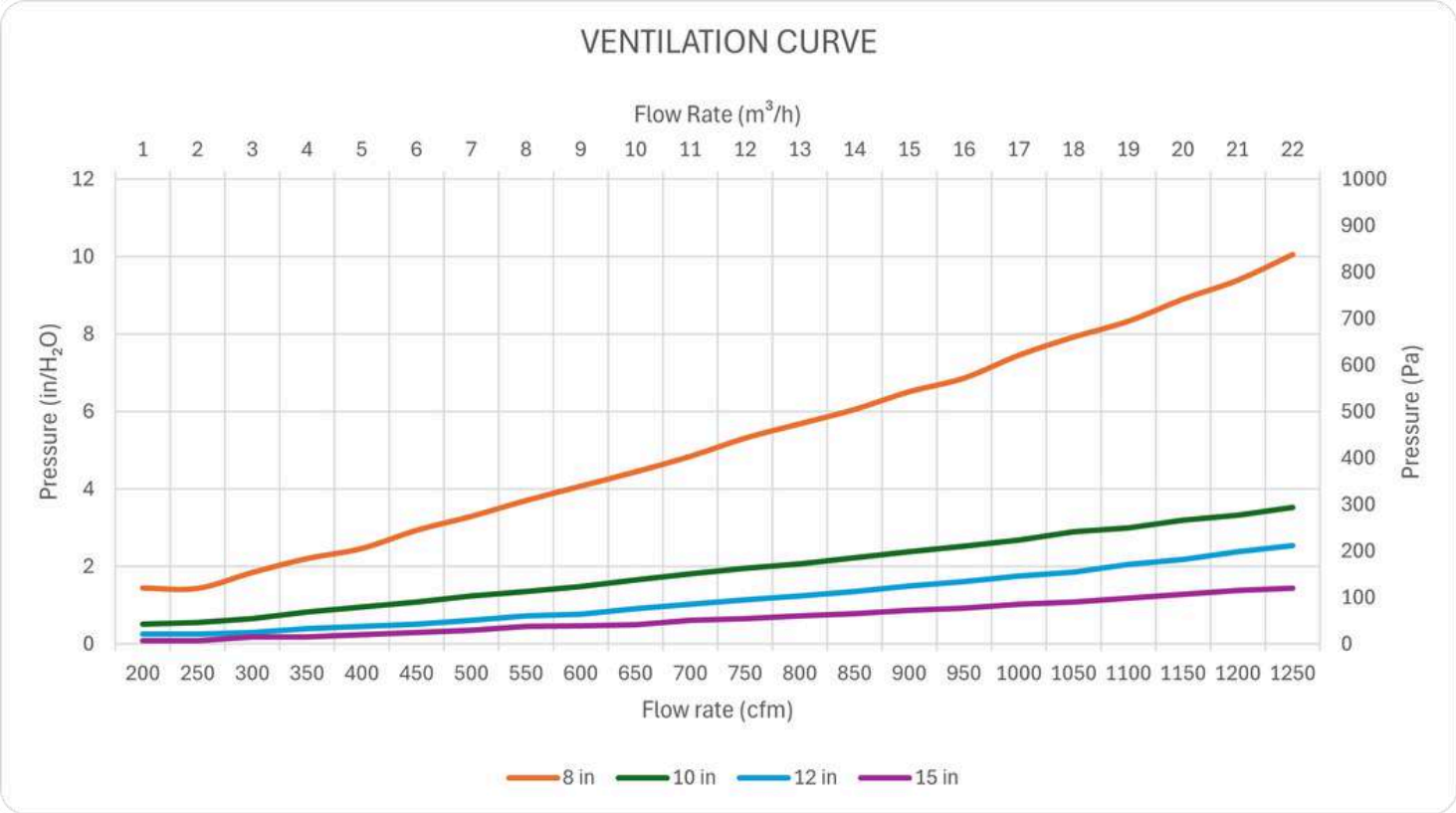
Figure 33

Model	A mm (in)	B mm (in)	C mm (in)	D mm (in)	E mm (in)
EPU-VENT12V-100	289 (11-3/8)	255 (10-11/16)	248 (9-3/4)	76 (3)	76 (3)
EPU-VENT24V-100	254 (10)	286 (11-1/4)	260 (10-1/4)	76 (3)	76 (3)

FAN PERFORMANCE

Model	Voltage (Volt)	Intensity (Amp)	Max Pressure in Pa (in/H_20)	Max Flow Rate in m3/h (cfm)
EPU-VENT12V-100	12	23	3736 (15)	204 (120)
EPU-VENT24V-100	24	29	5474 (22)	323 (190)

EPURA VENTILATION CURVE



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