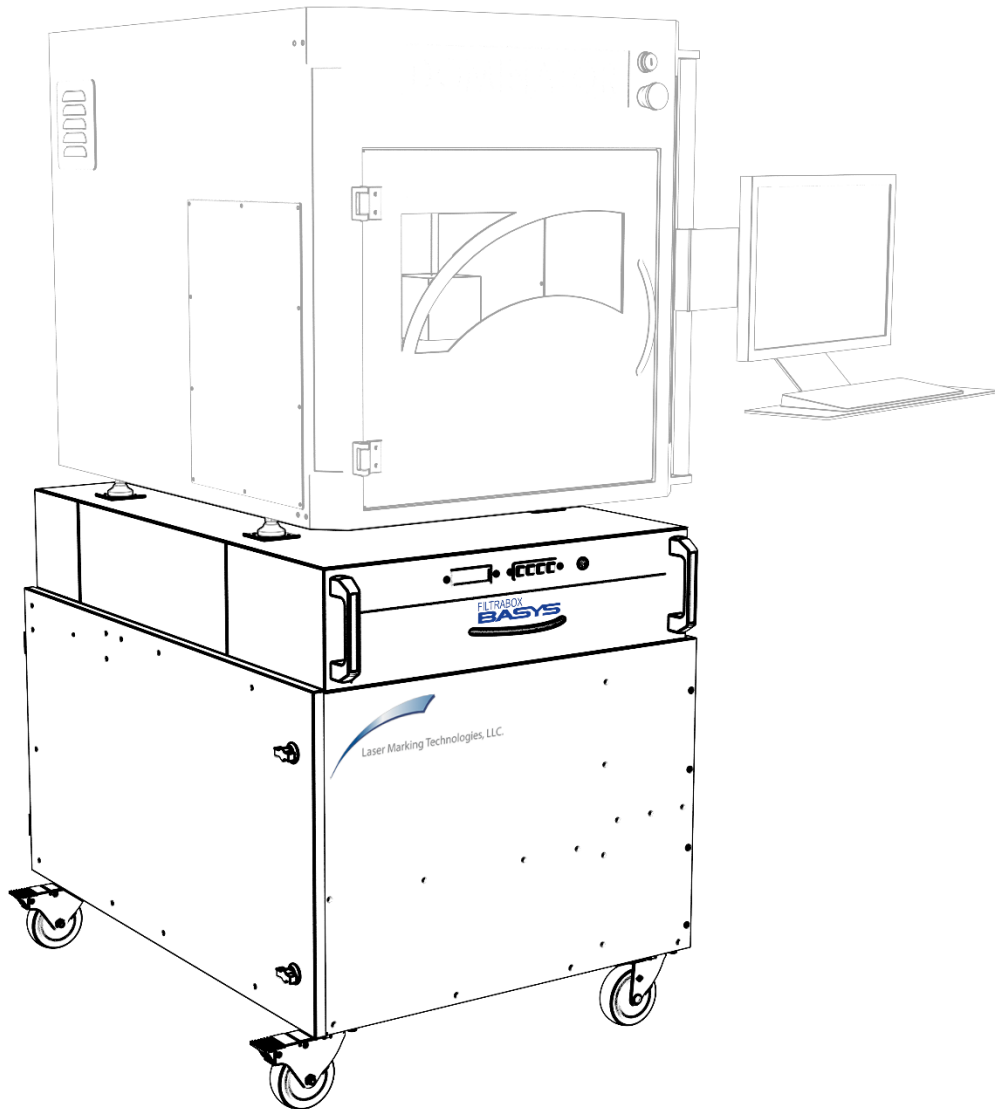


BASYS CD-1

USER MANUAL

For: LMT COBALT DOMINATOR

Laser Marking Technologies, LLC.



FILTRABOX 

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FOR SERVICE PHONE

1-888-655-8455
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INTRODUCTION

Thank you for purchasing a Filtrabox **Modular** Laser Fume Extractor:

BASYS CD-1 is designed to be used as both a fume extractor and a base support for the LMT laser system. It extracts dust and fumes, circulating clean air back into the room.

The machine is made up of modular parts for easy servicing and maintenance.

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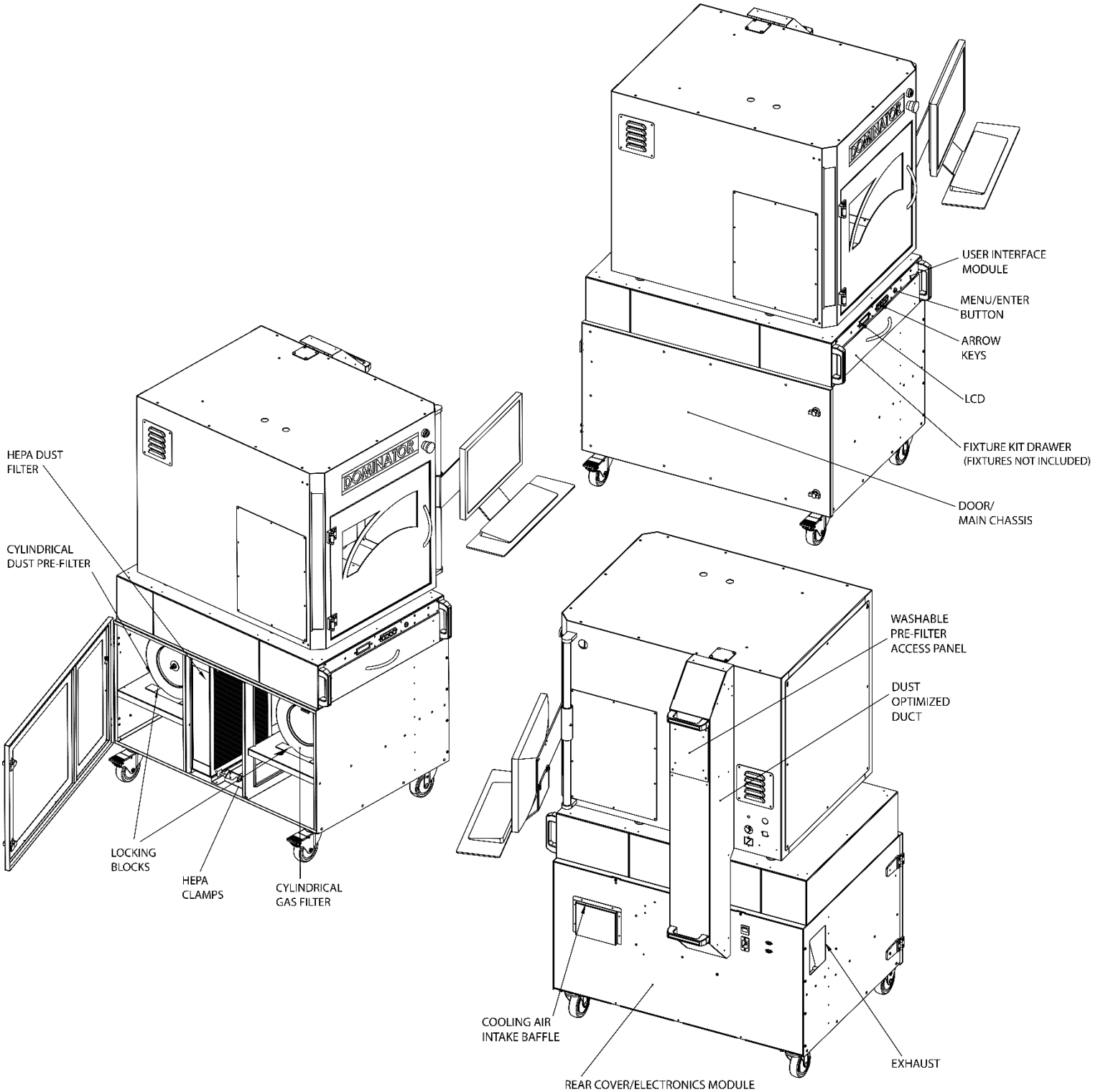
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SPECIFICATIONS

	Basys CD-1
Voltage	120V / 240V
Frequency (Hz)	50 / 60
Wattage (kW)	1.1
Blower Type	1x Brushless
Length (mm/inches)	1016 / 40
Width (mm/inches)	914 / 36
Height (mm/inches)	813 / 32
Weight "Packaged" (Kg/Lbs)	150 / 330
Max Flow (CFM)	265
Pressure (inH2O)	42 (High Pressure)
Construction	Steel
Design	Laser Base
Operating Decibels	50
Display/Control	LCD/Push Button
Flow Control	Auto-Compensation
Warranty	1 year
Pre-Filters	Washable Pre-Filter P/N: FIL-BY-493 Cylindrical Pre-Filter P/N: FIL-P-BY-423 Media: F9 Glassfiber Filtration Area: 7m ²
Hepa Filter	Rigid Aluminum HEPA Filter P/N: FIL-P-BY-413 Efficiency: 99.999% @ 0.3 Media: Glassfiber Filtration Area: 6m ²
Gas Filter	Cylindrical OXY-CARBON Filter P/N: FIL-G-BY-403 Dual Action: Oxidation/Adsorption Carbon Weight: 15 lbs

MACHINE DIAGRAM

BASYS CD-1



UNPACKING

! Useful Tip: The Filtrabox is shipped in custom packaging for maximum protection during transport. Consider keeping the packaging should you wish to ship the product again.

! Attention: The OXY-Carbon Gas Filter is HEAVY. Each filter weighs approximately 20lbs. Take appropriate care and precaution when lifting the filter.

Remove all the packaging and place all of the parts on the floor. Take inventory of the parts included with your kit:

1. *Main Chassis*
2. *Dust Optimized Duct*
3. *Washable Pre-Filter (inside duct) P/N: FIL-BY-493*
4. *Cylindrical Dust Pre-Filter (inside machine) P/N: FIL-P-BY-423*
5. *HEPA Dust Filter (inside machine) P/N: FIL-P-BY-413*
6. *OXY-Carbon Gas Filter (inside machine) P/N: FIL-G-BY-403*
7. *Power Cord (15 amp)*
8. *EZ-Link Cable*

QUICK START INSTRUCTIONS:

AIRFLOW SETTINGS & DUCT INSTALLATION

SAFETY

! Before connecting the device to a power source, ensure that the main power switch on the side of the device is in the off position "0".

! Avoid plugging or unplugging the unit while the blower is on.

MACHINE CONNECTION POINTS:

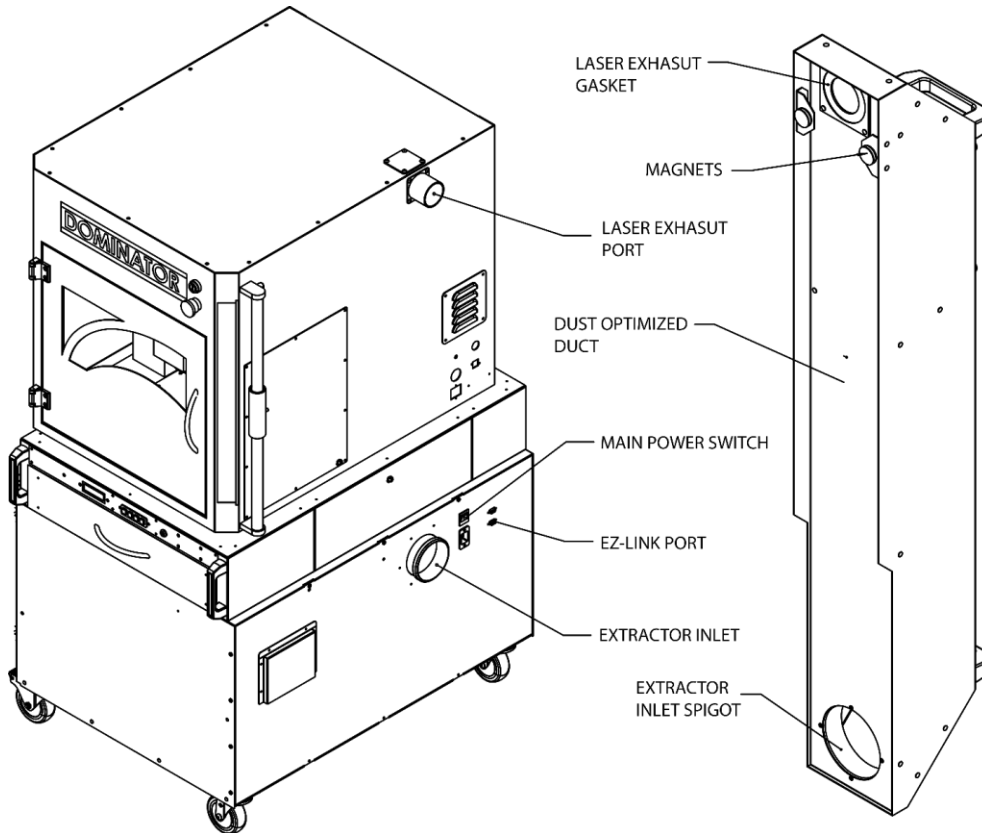


Figure 1. Ports and Spigots

The Laser Exhaust Gasket fits on the Laser Exhaust Port

The Extractor Inlet Spigot fits on Extractor Inlet

The Magnets stick to the side of the Laser Machine

DUCT INSTALLATION:

A dust optimized duct is supplied with the fume extractor. This duct connects the extractor inlet to the laser exhaust port, see Figure 1.

Carefully place the laser system on top of the fume extractor. The front surfaces of the laser and Filtrabox should line up; and the feet of the laser should align with the seams on the Filtrabox, as seen in Figure 2. The laser system should also be centered to the Filtrabox when viewed from the front, as seen in Figure 3.

! The laser system weighs over 300 lbs, always lift and move with appropriate equipment or manpower.

Install the custom duct onto the spigot of the fume extractor and the spigot of the laser and push the duct all the way onto the side surface of both the laser and fume extractor. There are magnets on the duct that will engage the side of the laser. See Figure 3.

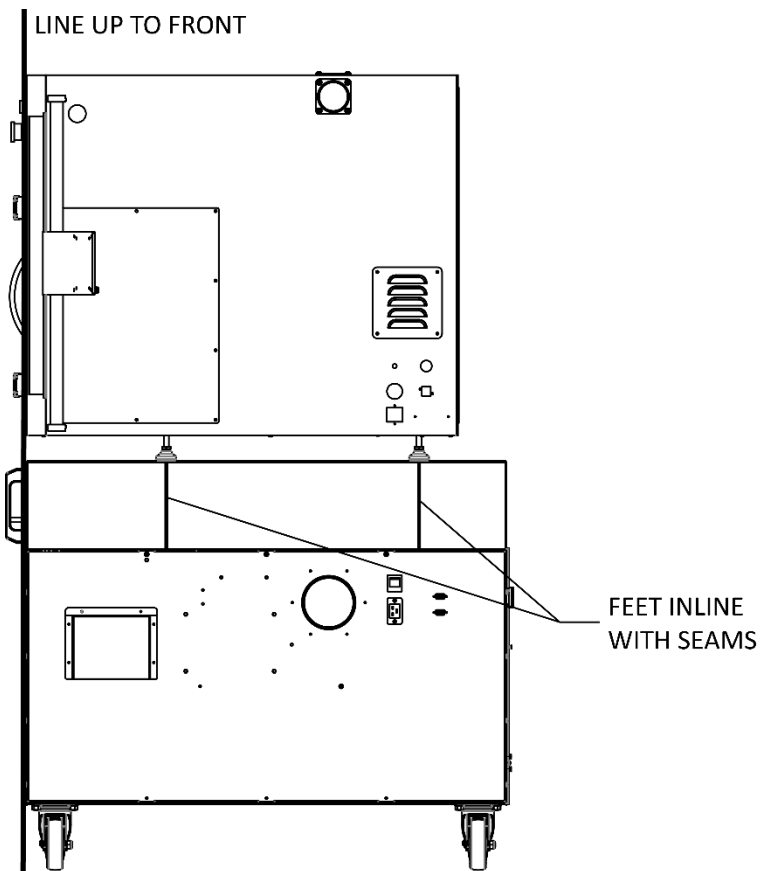


Figure 2. Positioning Laser System

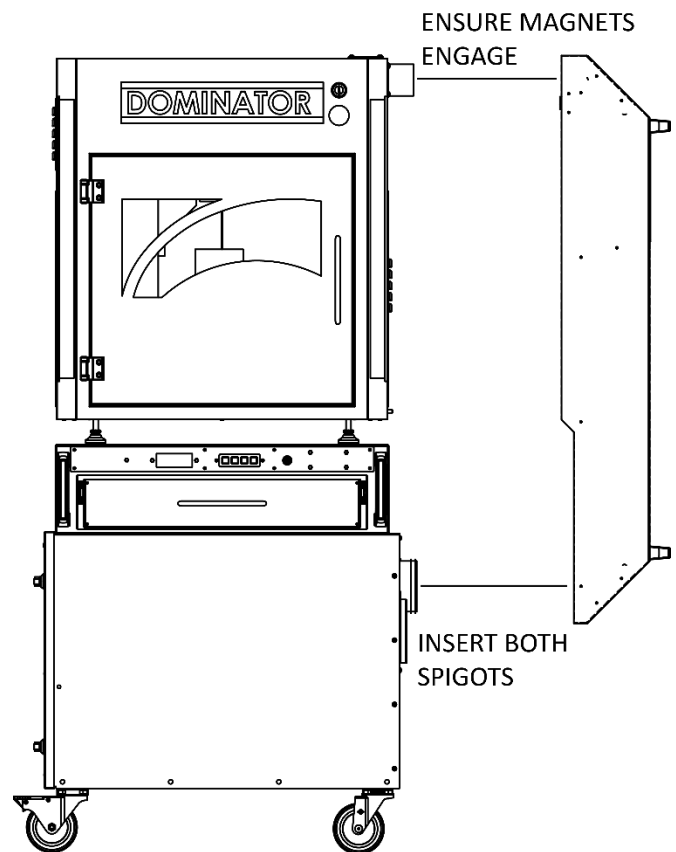


Figure 3. Installing Duct

AIRFLOW % SETTING

*The airflow setting has been factory **pre-set to 35%** which is optimal for most applications with your LMT laser system. However, the “Airflow %” can be adjusted with the up and down arrow buttons on the user interface if necessary.*

TIP: *In general, it is advised to set the “Airflow %” to the lowest setting that will allow for adequate evacuation of fumes. This maximizes the usage of the filters. Running the fume extractor at unnecessarily high flow settings reduces filter life.*

SETTING THE AIRFLOW% SETTING

1. Once the fume extractor has started for the first time, **the factory pre-set flow of 35% will be displayed on the user interface.**
2. The fume extractor is set to “Link” mode by default. This means that the fume extractor will turn on when a laser job is initiated and will stop when the laser job is done. For this to work, the supplied EZ-link cable must be installed between the laser and the fume extractor, see Figure 1. If you wish to control the fume extractor manually, please refer to the user manual.
3. Set the “Airflow %” to the desired starting point by pressing the “UP” or “Down” arrow keys if the pre-set of 35% is not appropriate for your application.

! The AUTO-COMPENSATION FLOW CONTROL feature, which is standard on the Filtrabox, will maintain the set-point “Airflow %” by automatically increasing power to the blowers as the filters get obstructed by the dust. You do not have to manually change the “Airflow %” setting again – unless you change your laser or use a more fume generating substrate. Note: “Airflow %” represents the Airflow potential of your system.

**YOUR FILTRABOX LASER EXTRACTOR IS
NOW SET-UP FOR OPERATION.**

FILTER REPLACEMENT INSTRUCTIONS

! When the “Check Filter” warning comes on, increasing the “Airflow %” value WILL NOT increase actual airflow. The “Check Filter” warning indicates that the “Airflow %” set-point can no longer be achieved despite the fact that the power applied to the blower by the “AUTO-COMPENSATION FLOW CONTROL” feature is at maximum value. This is most likely due to airflow blockage in the pre-filter or HEPA filter from normal usage.

The Filtrabox Basys CD-1, has 4 types of filters; Washable Pre-Filter, Dust Pre-Filter, HEPA filter and OXY-Carbon Filter.

1. **Washable Pre-Filter (P/N: FIL-BY-493):** Collects Large Dust Particles
2. **Pre-Filter (P/N: FIL-BY-P-423):** Collects Fine Dust
3. **HEPA Filter (P/N: FIL-P-BY-413):** Collects Ultra-Fine Dust
4. **OXY-Carbon Filter (P/N: FIL-G-BY-403):** Adsorbs and destroys odor causing gases.

All four filters will need to be independently replaced at some point in time during the course of normal use. The washable pre-filter may be washed many times; inspect for tears or other damage after washing and replace if necessary.

“CHECK FILTER” WARNING

! Replacement filters can be purchased from: www.filtrabox.com or call 514.840.9696 ext. 102

The “Check Filter” warning will appear on the screen when the Dust filters (Pre-Filters and/or the HEPA filter) need replacement.

When the “Check Filter” warning comes on, increasing the “Airflow %” value WILL NOT increase actual airflow. The “Check Filter” warning indicates that the “Airflow %” set-point can no longer be achieved despite the fact that the power applied to the blower by the “Dynamic Flow Control” feature is at maximum value. This is most likely due to airflow blockage in the Pre-filter or HEPA filter from normal usage.

“FILTER CHECK” FEATURE

! Useful Tip: Check for obstructions in the hose first before ordering a new filter. An obstruction in the hose may cause erroneous “CHECK FILTER” WARNINGS.

! The Pre-Filters capture the majority of the dust generated by the laser. Therefore, they are the most frequently replaced dust filters in the system.

! Replacement filters can be purchased from: www.filtrabox.com or call 514.840.9696 ext. 102

THE “FILTER CHECK” FEATURE IDENTIFIES WHICH DUST FILTER (Washable Pre-Filter, Pre-Filter or HEPA) NEEDS REPLACEMENT.

- 1 If the **CHECK FILTER** warning comes on, go to the **User Interface** and press the **Menu/Enter** button. Press the **left or right** arrow keys to scroll through the menu functions until you find the **CHECK FILTER** feature.
- 2 Press the **Menu/Enter** button to initiate the **CHECK FILTER** process.
- 3 Filtrabox will first do an **ALL FILTERS TEST** to assess the status of **all the Dust Filters** in your system and display the **Remaining System Capacity**. At this point follow the instructions displayed on screen as follows:
 - 3.1 If all filters pass, there will be no further action required.
 - 3.2 If you are prompted to **REMOVE PREFILTER # 1 AND PRESS OK**, remove the **Washable Pre-Filter** and press **Menu/Enter**. Filtrabox will now assess the status of this filter then display the **Remaining System Capacity**.
 - 3.2.1 If you are prompted to **SERVICE WASHABLE PRE-FILTER**, then this filter needs to be cleaned. Go to the **Replacing Washable Pre-Filter** section for details.
 - 3.2.2 If you are prompted to **REMOVE PREFILTER # 2 AND PRESS OK**, remove the **Pre-Filter Cylinder** and press **Menu/Enter**. Filtrabox will now assess the status of this filter then display the **Remaining Filter Capacity**.
 - 3.2.2.1 If you are then prompted to **REPLACE SYSTEM PREFILTER UNIT**, then this filter is in need of replacement. Go to the **Replacing the Dust Pre-Filter Cylinder** section for details. You will then be prompted to **REINSTALL ALL AND PRESS OK** which is a reminder to reinstall the **Washable Pre-Filter** before continuing.
 - 3.2.2.2 If you are prompted to **REPLACE MAIN HEPA FILTER**, then this filter is in need of replacement. Go to the **Replacing the HEPA Dust Filter Cartridge** section for details. You will then be prompted to **REINSTALL ALL AND PRESS OK** which is a reminder to reinstall the **Washable Pre-Filter** and the **Dust Pre-Filter Cylinder** before continuing.

WASHING/REPLACING WASHABLE PRE-PREFILTER

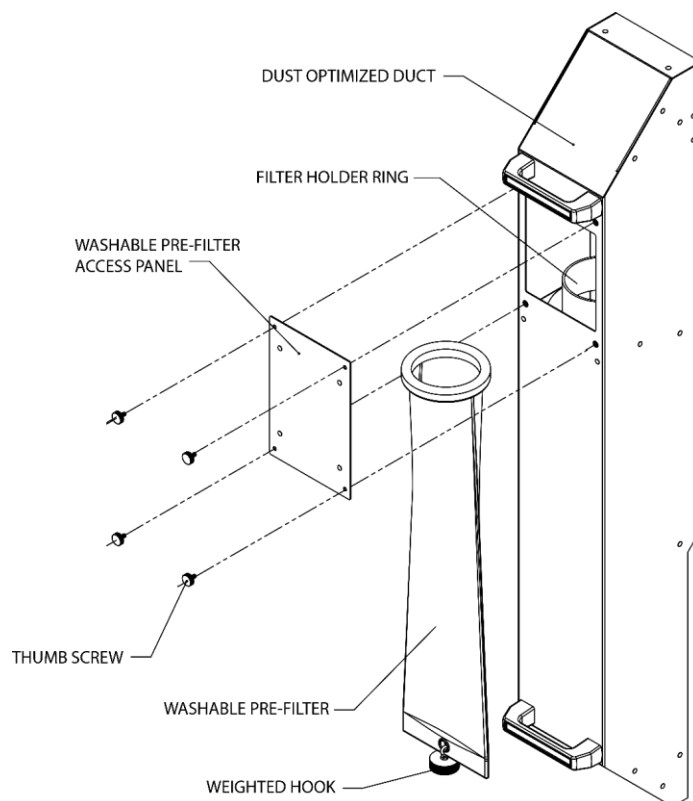


! This pre-filter is machine washable in cold water, on the gentle cycle. Tumble dry on gentle with medium heat. Remove the weighted hook before washing.

! To avoid any risk of electrical discharge, turn off and unplug the Filtrabox before doing any activities that require disassembly of the unit.

! Replacement filters can be purchased from: www.filtrabox.com or call 514.840.9696 ext. 102

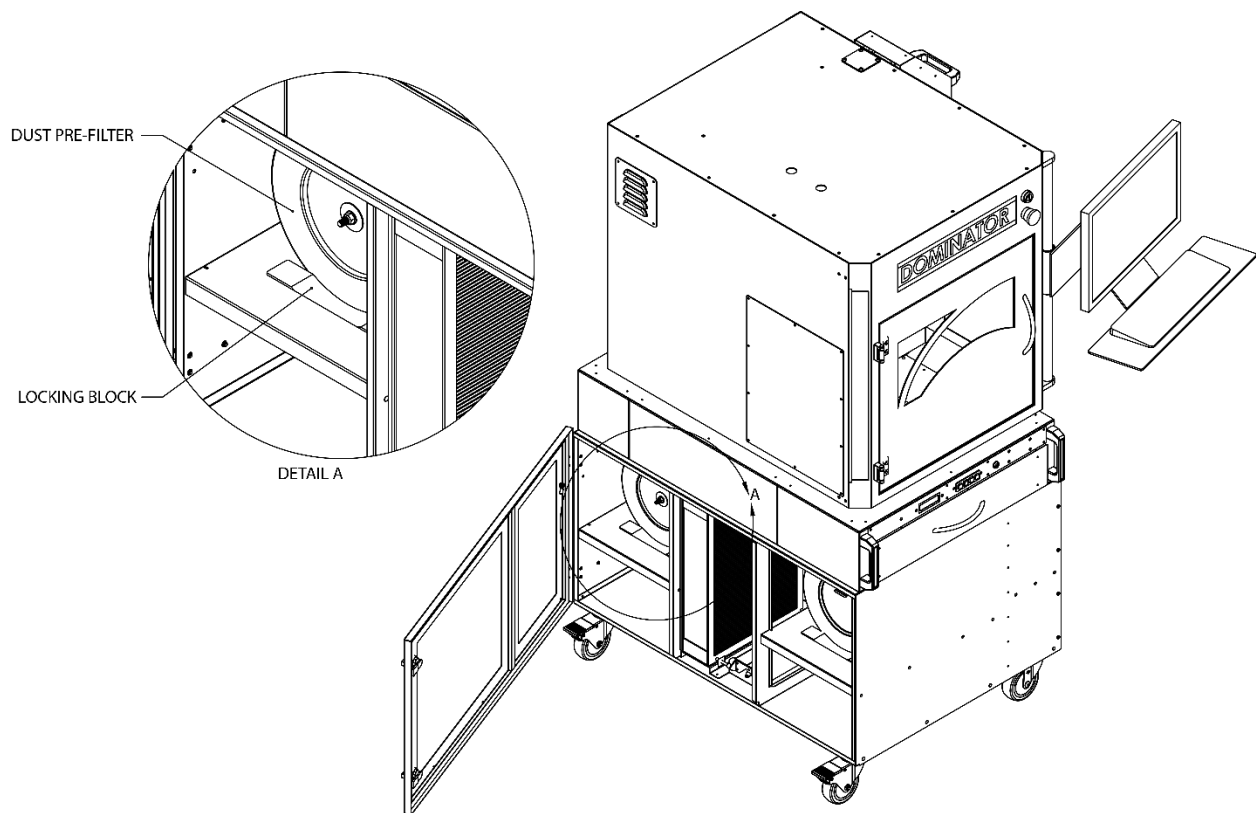
1. Remove the **Washable Pre-Filter Access Panel** on the **Dust Optimized Duct** by turning the four thumb screws.
2. Remove the **Washable Pre-Filter** off the edge of the plastic holder and pull it out.
3. Remove the **Weighted Hook**.
4. Place the **Washable Pre-Filter** inside-out into a plastic bag.
5. Shake off the excess dust from the filter into the plastic bag.
6. Hand or machine wash the filter in **cold water on the gentle cycle**.
7. Hang or tumble dry the filter on **gentle with medium heat** then turn the filter right-side-out.
8. Replace the **Weighted Hook** and reinstall the filter by passing the **weighted end through the holder first**.
9. Seat the **ring end** against the edge of the holder.
10. Close the **Access Panel** by tightening the four **Thumb Screws** on the panel.



REPLACING THE DUST PRE-FILTER CYLINDER

! Replacement filters can be purchased from: www.filtrabox.com or call 514.840.9696 ext. 102

1. Open the **Access Door** on the **Main Chassis**, by turning the two **Black Knobs** on the door.
2. Lift the **Pre-Filter Cylinder** over the locking block and pull the filter out towards you. (**Do not** remove the locking block)
3. Pull the **Pre-Filter Cylinder** out of the **Main Chassis**.
4. Place a new **Pre-Filter** into the **Chassis** with the blue inlet side of the filter facing the **Spigot** which is located inside, at the back of the chassis.
5. Slide the **Pre-Filter** forward onto the **Spigot** until it is fully engaged onto the **Spigot**.
6. The **Pre-Filter will be locked into** place when the filter fully clears the locking block and is sitting flat in its slot.
7. Close the **Access Door** and turn the two **Black Knobs** to seal the door.



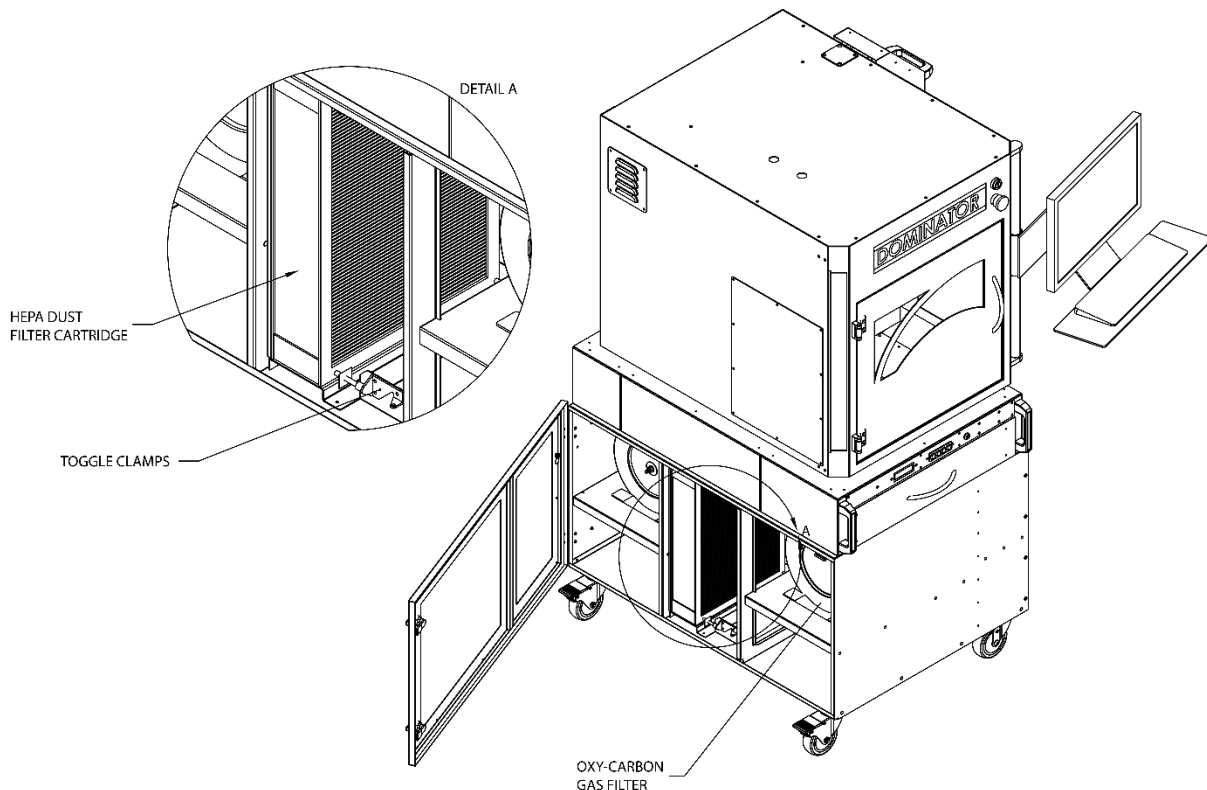
REPLACING THE HEPA DUST FILTER CARTRIDGE

! To avoid any risk of electrical discharge, turn off and unplug the Filtrabox before doing any activities that require disassembly of the unit.

! Replacement filters can be purchased from: www.filtrabox.com or call 514.840.9696 ext. 102

! Attention: The OXY-Carbon Gas Filter is HEAVY. Each filter weighs approximately 20lbs. Take appropriate care and precaution when lifting the filter.

1. Open the **Access Door** on the **Main Chassis**, by turning the two **Black Knobs** on the door.
2. The **HEPA dust filter** is the rectangular aluminum cartridge in the center of the machine.
3. There are **4 toggle clamps** with red handles on the right of the **HEPA dust filter**. Release the **4 toggle clamps** and shift **HEPA dust filter** towards the right.
4. Pull the spent **HEPA dust filter** straight out of the **Main Chassis**.
5. Install the new **HEPA dust filter** back into the **Main Chassis**. Make sure that the **airflow arrow** is pointing towards the **OXY-CARBON Filter** on the right. Also make sure that the filter is pushed all the way back into the chassis. Lock the **4 toggle clamps**.
6. Close the **Access Door** and turn the two **Black Knobs** to seal the door.



REPLACING OXY-CARBON GAS FILTER CYLINDER

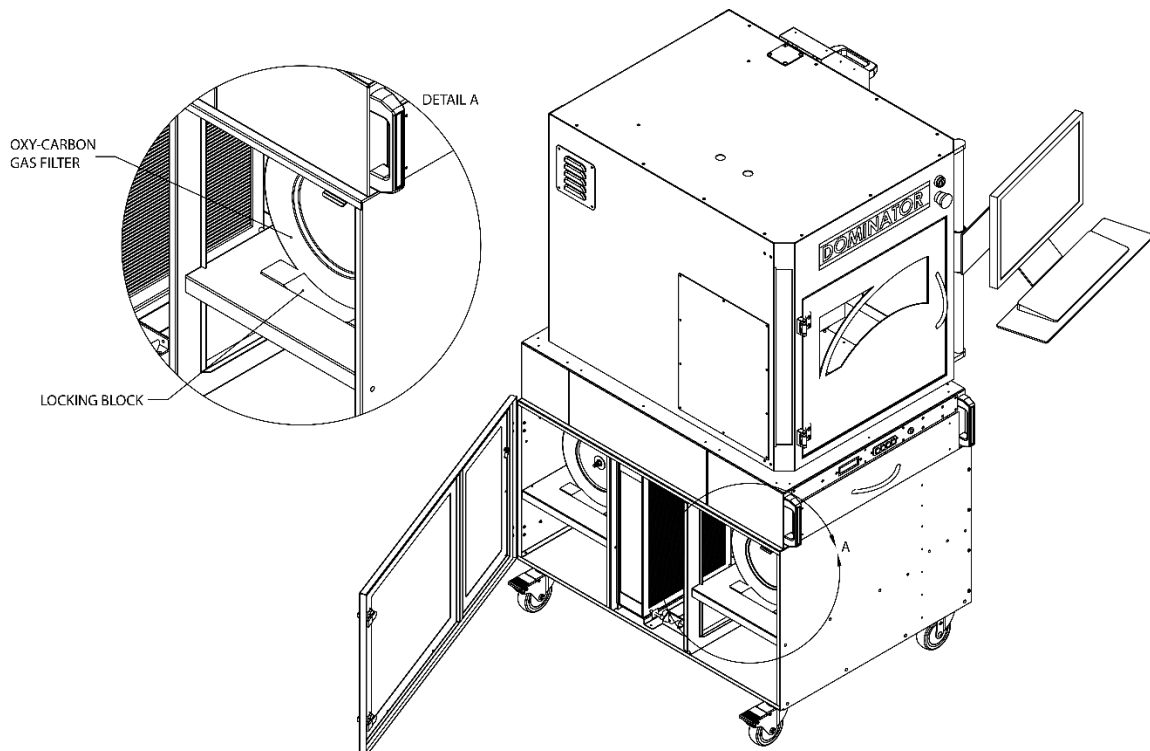
! When laser odor becomes evident, it is time to change the GAS FILTER.

! To avoid any risk of electrical discharge, turn off and unplug the Filtrabox before doing any activities that require disassembly of the unit.

! Replacement filters can be purchased from: www.filtrabox.com or call 514.840.9696 ext. 102

! Attention: The OXY-Carbon Gas Filter is HEAVY. Each filter weighs approximately 20lbs. Take appropriate care and precaution when lifting the filter.

1. Open the **Access Door** on the **Main Chassis**, by turning the two **Black Knobs** on the door.
2. Lift the **OXY-CARBON Filter** (Cylindrical filter on the left of the machine) over the locking block and pull the filter out towards you. (**Do not** remove the locking block)
3. Pull the **OXY-CARBON Filter** out of the **Main Chassis**.
4. Place a new **OXY-CARBON Filter** into the **Chassis** with the blue inlet side of the filter facing the **Spigot** which is located inside, at the back of the chassis.
5. Slide the **OXY-CARBON Filter** forward onto the **Spigot** until it is fully engaged onto the **Spigot**.
6. The **OXY-CARBON Filter will be locked into** place when the filter fully clears the locking block and is sitting flat in its slot.
7. Close the **Access Door** and turn the two **Black Knobs** to seal the door.



SETTINGS

Press the “Menu/Enter” button and then use the “Left or Right” arrow keys to scroll through the settings menus. Press the “Menu/Start” button to select the setting:

OPERATING MODE SETTING

There are **3 Modes of Operation**. In all three modes, the user always controls the “**Airflow %**” setting by simply pushing the “UP or Down” arrow keys at any time. To select the mode, press the “Up or Down” arrows to scroll the options below and press the “Menu/Enter” button to confirm your selection.

1. Link On/Off (Default)

This mode uses the **DB9 connection** at the rear or the Filtrabox. The blowers will be engaged at the previously set “**Airflow %**” when Laser requests it. (If feature is available on the Laser.) When the Laser does not require any airflow, the system automatically deactivates the blowers. If there is no laser system connected, the blowers will never engage. See the Controller Set-up and Pin-Out example at the end of the manual.

2. Manual Mode (On/Off)

This mode allows the user to manually choose the on/off state of the blowers in the Filtrabox. This is the default mode. Toggle “**ON/OFF**” by pressing the “**Left**” arrow key. The blower(s) will be engaged to the previously set “**Airflow %**”

3. Link On/Idle

This mode uses the **DB9 connection** at the rear or the Filtrabox. The blowers will be engaged at the previously set “**Airflow %**” when Laser requests it. (If feature is available on the Laser.) When the Laser system does not requires operating airflow, the system continues **idle** at a very low setting to contain fumes from the off-gassing of lasered materials, and off-gassing of dust in the Filtrabox or the Laser enclosure. See the Controller Set-up and Pin-Out example at the end of the manual.

FILTER CHECK SETTING

See the *FILTER CHECK Feature* in *Filter Replacement Instructions*.

NEW APPLICATION CALIBRATION SETTING

! This will initiate the Calibration sequence. Avoid doing this unnecessarily. This should only be used if you are changing lasers, length of hose, diameter of hose; anything that would change (reduce or increase) the airflow restrictions in the entire system.

While in the “**New Application Calibration**” setting, press the “**Menu/Enter**” button to initiate Calibration. ***The Calibration process will take several minutes; 3-6 MINUTES.*** *If you have selected the wrong number of blowers, the calibration process will fail and the system will have to be rebooted and the process restarted.*

SERVICE MENU SETTING

This menu is only to be used by Filtrabox Technicians or with the guidance of a Filtrabox Technician.

EZ-LINK CONTROLLER SET-UP AND PIN-OUT

BASYS CD-1 DB9 PIN-OUT

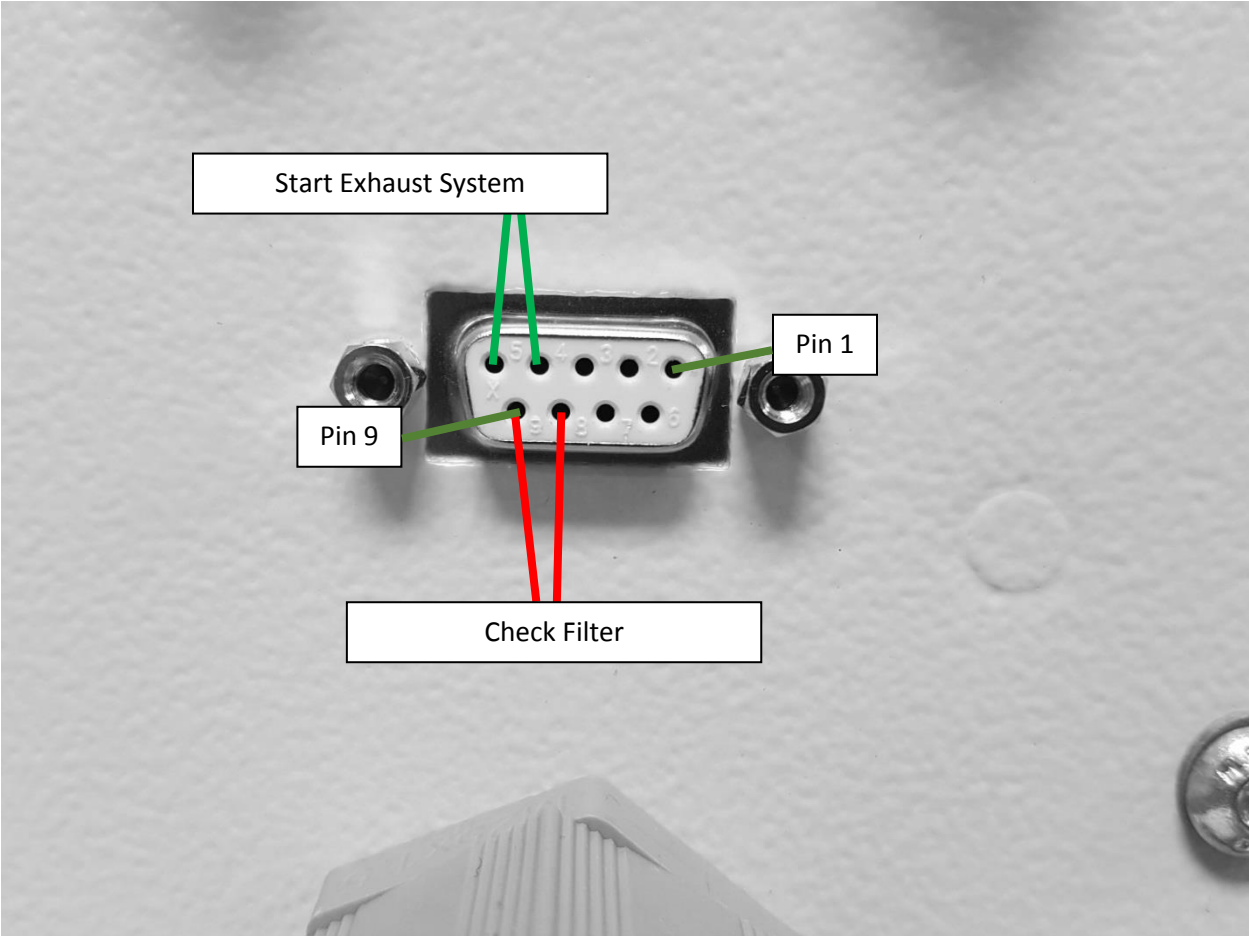


Figure 4: An example of a D-Sub 9 connector on BASYS CD-1

Pins 4 & 5: Normally Open – Output from Laser Controller

The controller connects these two pins to start the exhaust system.

Pins 8 & 9: Normally Open – Input to Laser Controller

The exhaust system should connect these two pins when the filter check status appears on the extractor.

EZ-Link Electrical Requirements

Figure 5 below shows the required circuit for the output on the laser's filter control system. When the laser's filter control unit wishes to turn on the exhaust system, the contacts on the relay are closed, thus connecting the two output pins. These output pins correspond to pins 4 & 5 on the exhaust system. When creating a circuit to detect when these two wires have been connected, **no more than 200 mA** may pass through these wires.

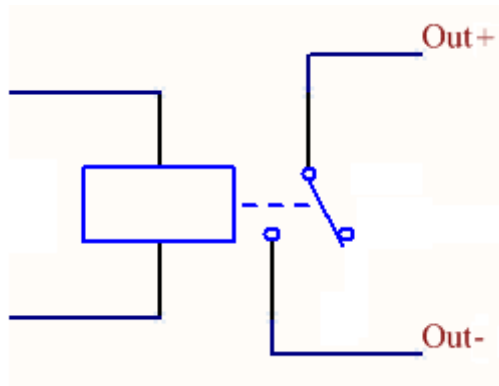


Figure 5: The circuit for the "start exhaust system" signal.

When creating the "Check Filter" signal, the two wires for the signal should be shorted together using a relay. This means that the exhaust system will not actively dump any current through these wires. The laser's filter control unit should use approximately 30 mA to detect when those wires have been connected.

EZ-Link Control Operations

The filter control operation is very simple. When a user begins to run a laser engraving/cutting job, the filter controller turns on the exhaust system immediately. When the job has been cancelled, paused, or finished, the laser's filter control unit should wait 15 seconds or more before turning off the exhaust system. This allows any extra fumes to be evacuated from the laser engraver.

SUPPORT

For any and all questions related to our Filtrabox products and accessories, please do contact us anytime. It will be our pleasure to make fume extraction easier and more effective for any of your applications.

Please contact us through: www.filtrabox.com or call us 514.840.9696 ext. 102



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514-840-9696

WARRANTY

1 Goods manufactured by PAT: PAT warrants that the Goods manufactured by it will be free from defects in materials and workmanship for a period of 12 months from the date of *item receipt*.

Exceptions:

Spare parts including replacement filters: 1 month from installation.

Used and ex-demonstration equipment: 1 month from installation.

In the case of any breach of warranty then PAT shall at its option remedy such defects or refund such sums as the Purchaser has paid to PAT in respect of such Goods. PAT shall be under no liability under the above warranties:

1.1 arising from any drawing, design or specification supplied by the Purchaser;

1.2 arising from improper installation, storage, use, modification or operation including but not limited to the use of consumable items not approved by PAT;

2 Goods manufactured by third parties : PAT will use its best endeavours to obtain for the purchaser the benefit of any warranty provided by the original manufacturer of the Goods. Repair or replacement, in whole or in part, of Goods which fail due to faulty manufacture is available from the original manufacturer under its warranty. PAT must be consulted to approve the return of Goods for replacement or repair under the original manufacturer's warranty.

3 All replacement items will be charged at the point of dispatch. Provided the original items are received back at PAT within 28 days from the date upon which the Returns Authorisation Number is issued and PAT agree following testing / inspection that these are defective, a credit note will be issued.

4 Services: PAT warrants that it will carry out the Services with reasonable care and skill. If PAT is shown to be in breach of this warranty in respect of particular Services it shall at its option and cost either re-provide those Services or refund any sums already paid in respect of those Services.

5 PAT does not exclude or limit its liability in negligence for death or personal injury, or for fraud or wilful default, or otherwise to the extent that any exclusion or limitation of its liability is void, prohibited or unenforceable by law.

6 Subject to Clauses 6.1 - 6.5, all representations, warranties and conditions implied by trade custom, course of dealing, statute, common law or otherwise are excluded to the fullest extent permitted by law.

7 Subject to Clause 6.5, in no circumstances shall PAT be liable to the Purchaser, in contract, at law or otherwise, for any incidental or consequential loss including, without limitation, any loss of profit, business, revenue, goodwill or anticipated savings or for any special, exemplary or consequential damages or other financial loss whatsoever arising out of or in connection with the Contract or the supply of the Goods or Services or their use or resale (if applicable) by the Purchaser.

8 If notwithstanding the provisions of these Conditions PAT is found liable for any loss suffered by the Purchaser arising in any way out of or in connection with the Contract or the supply of any Goods or Services that liability shall in no event exceed the price paid for such Goods or Services.

9 The parties hereby confirm that notwithstanding any other provision of the Contract or these Conditions, the Contract shall not and shall not purport to confer on any third party the right to enforce any term of the Contract.