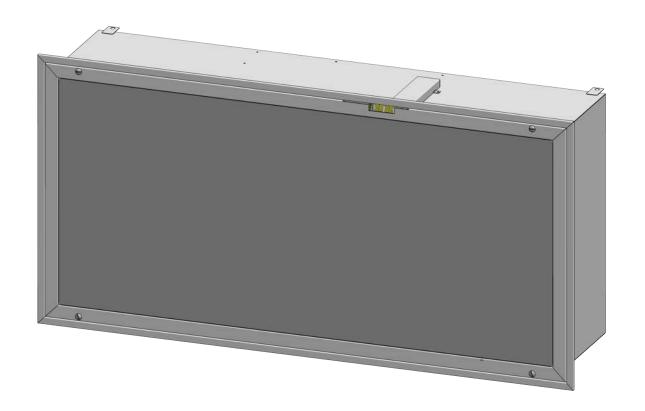


READ COMPLETELY AND SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE



-These instructions cover fan filter unit models:

- SSLFHFD-FFU (Standard, top side access)
 SSLFHFD-FFU-MEA (Motor/Electronics Accessible, room side access)



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DRAWN BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL	TAG	QTY	REV # F SHT 1/32
CHKD	SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:8
APRVD 03/04/22	SIZE	•		DO NOT SCALE



Critical operation conditions of the Fan Filter Unit

- DO NOT TOUCH the HEPA filter media. Damage to filter media may void the filter warranty. The screen is to protect against accidental contact with the filter. Never place objects on the filter. Always transport or lift the filter by its frame.
- Prior to powering the unit, verify that it is wired to the correct power supply. The rating plate label located on the electrical box shows the electrical data.
- For replacement parts refer to the model number and serial number on the rating plate label located on the electrical box.

Replacement Part numbers

FFU-RP11 - 48 x 24 x 3.5" High-Flow HEPA filter

FFU-RP12 - 36 x 24 x 3.5" High FlowHEPA filter

FFU-RP13- 24 x 24 x 3.5" High Flow HEPA filter

FFU-RP14 - 14 x 14 x 3/8 Expanded aluminum pre-filter (2-ply)

FFU-RP21 - Variable speed motorized impeller (120 VAC)

FFU-RP22 -Variable speed motorized impeller (208, 240, 277 VAC)

FFU-RP31 - Main control board

FFU-RP32 - Airflow measure and display system

FFU-RP33 - Face control/display board (board only)

FFU-RP34 - 120 -- 24 VAC transformer

FFU-RP35 - 208/240 -- 24 VAC transformer

FFU-RP36 - 277 -- 24 VAC transformer

FFU-RP37 - Network power control circuit board

FFU-RP38 - PAO challenge system

FFU-RP39 - Safety shut-off switch

FPH-RP40 - Resetable fuse (8A up to 240 VAC)

FPH-RP41 - Fuse holder with fuse (5A @ 277 VAC)

FPH-RP42 - Cartridge fuse (5A @ 277 VAC)

WHEN ORDERING REPLACEMENT PARTS, PLEASE INCLUDE UNIT MODEL & SERIAL NUMBER AND PO # IF AVAILABLE.



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DRAWN	CATEGORY	TAG	QTY	REV:	# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT	2/32
CHKD	SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL	1:10
APRVD 03/04/22	SIZE	•			NOT ALE



READ COMPLETELY AND SAVE THESE INSTRUCTIONS

WARNING - TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, ALLOW ONLY QUALIFIED TECHNICIANS TO INSTALL AND SERVICE THE UNIT. ALL PERSONS SHOULD OBSERVE THE FOLLOWING:

- a) Use this unit only in a manner intended by the manufacturer. If you have questions, contact the manufacturer.
- b) Before servicing or cleaning unit, switch power off at the servicepanel and lock-out the service in accordance with OSHA (LOTO) practices and procedures to prevent power from being accidentally switched on avoiding accidental electric shock and injury. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
 - Installation work and electrical wiring must be completed by qualified personnel in accordance with all applicable codes and standards, to include fire-rated constructions.
 - When cutting or drilling into walls and ceilings, be careful not to damage electrical wiring and other hidden utilities.
 - If this unit is to be installed within close proximity to water, mark the unit in accordance with applicable codes and standards.
 - This unit is to be used only as intended by the manufacturer. If you have any questions regarding the use, installation, or operation of this unit, contact the manufacturer:

AJ Manufacturing Co., Inc.

8701 Elmwood Avenue; Suite 400 Kansas City, MO 64132

Tel: 816-231-5522



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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 3/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:10
APRVD 03/04/22	SIZE	,		DO NOT SCALE



INSTALLATION CHECKLIST

This is to provide a general overview of what steps should be taken to achieve a successful installation of the fan filter unit. These steps should be performed in the order listed. For more detail see applicable section in this instruction manual. Read the entire manual before begining installation.

Prepare the installation site with appropriate power, data cabling, support structure, and openings as needed.
Unbox and inspect the fan filter unit.
Install the fan unit into the ceiling. Support its weight from structure above.
Connect ductwork to fan unit (if applicable).
Seal the fan filter unit to the ceiling using gasketing and caulking.
If the unit is to be ducted, set upstream air device to produce 0.0" W.C. static pressure at the fan unit inlet. Use dampers if necessary if installing mutiple fan units on the same duct line.
Verify incoming power matches the rating plate then connect main power wiring.
Connect control wiring (if applicable).
Run the unit and/or upstream air device to flush out construction debris.
Install the pre-filter (if applicable).
Install the HEPA/ULPA filter.
Turn unit on and adjust airflow to design CFM.
Turn on the upstream airflow device.
Leak test the fan unit and filter per local codes and building procedures.
Calibrate airlow sensor, if equipped, to flow hood.
Install the perforated face screen.



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DRAWN	CATEGORY	TAG	QTY	REV#	# F
BRS/SLG CHKD	CRITI-CLEAN ULTRA INSTALLATION MANUAL PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SHT SCL	4/32 1:10
APRVD 03/04/22	SIZE	.		DO I	

Installation

The terminal unit is fully assembled from the factory with the exception of the HEPA filter. Filter is shipped in a separate box.

- Step 1 -- Carefully remove the unit from the shipping carton and inspect for damage that may have occurred during shipping. If shipping damage is found, do not install. Call the supplier to report damage.
- Step 2 -- Wipe down unit to remove shipping dust and debris.
- Step 3 -- Raise unit into position and secure using the hanger tabs. Alternately it can be secured a framed opening through the frame if care is taken not to damage the knife edge and all penetrations are sealed. Any gasket should be a closed-cell material approved for the environmental conditions. Sealant used to seal the unit to the ceiling should be approved for the application and conditions.
- Step 4 -- A qualified technician should connect the unit to the appropriate power supply per applicable codes and standards. Verify circuit and rating plate voltages match. Refer to the wiring diagrams included in these instructions. -FFU units: the electrical box will be accessible from the plenum side. -FFU-MEA units: the electrical box will be accessible from the room side.

SSLFHFD-FFU-120 --- 120 VAC SUPPLY, 2.8 FLA SSLFHFD-FFU-208 --- 208 VAC SUPPLY, 2.6 FLA SSLFHFD-FFU-240 --- 240 VAC SUPPLY, 2.3 FLA

SSLFHFD-FFU-277 --- 277 VAC SUPPLY, 1.9 FLA

Main Power Switch (Room Side Accessible)

Line Power Knock Out

CRITI-CLEAN ULTRA

NOTE: An additional disconnect should be added

by others per applicable codes and regulations.

FAN FILTER UNITS

Step 5 -- Blow out / clean entire duct system leading to unit to remove construction debris. This is especially important for motor accessible units as they do not have a pre-filter. Wash pre-filter if applicable per "Cleaning the Fan Filter Unit Pre-filter" on page 7.

Step 6 -- Install the HEPA filter per the "Removal and Replacement of the HEPA Filter with Gel Seal" section.

NOTE: FOR DUCTED INSTALLATIONS, IT IS RECOMMENDED THAT PRIMARY AIR BALANCING TO ACHIEVE 0.0"WC INLET STATIC PRESSURE BE DONE BEFORE FAN FILTER UNIT IS CONNECTED TO DUCT SYTEM.



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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 5/3
CHKD	PRODUCT	DRAWING NAME		SCL 1:10
	SSLFHFD-FFU, SSLFHFD-FFU-MEA			SCL 1.10
APRVD	SIZE	,		DO NOT
03/04/22				SCALE

Main Control Board



A NOTE ABOUT VAV BOXES AND DUCTED APPLICATIONS

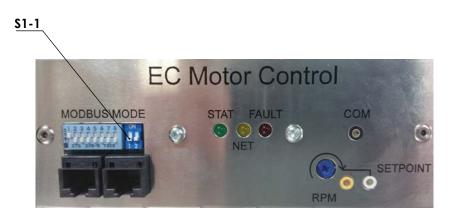
In applications where the fan filter unit will be installed downstream of variable airflow devices such as VAV boxes, air valves, or variable air handlers, proper care in unit set-up needs to be taken.

In these applications the unit should not be programed to run as constant airflow when ordered with the Airflow Sensor.

Two variable controllers trying to reach their respective set point will continuously adjust. This will cause issues such as surging, starving, and eventual shut down of the fan filter unit. In these applications the unit should be placed into "open-loop" control by turning off the \$1-1 dip switch (see pict below). This will no longer keep constant airflow automatically. It will also remove the dirty filter ramp-up feature and the HEPA-lert dirty filter indicator (if applicable) will be set as a static timer of 4400 hours (about 6 months). The set point will now be a percentage of motor speed instead of CFM but it will still display CFM during normal operation. The unit in this setting is still preferable to a PSC system due to the energy efficiency of an ECM versus a PSC motor and all control options are still applicable.

DUCTED APPLICATIONS

If ordered with the Airflow Sensor option the condition immediately before the inlet can impact the CFM reading. Use the "C" up and down arrows on the face control to calibrate the airflow sensor to match the balancer's flow hood to insure accurate airflow control. This calibration is best done as near to the operating point as possible. Recalibration may be required if the setpoint changes more than 25%. In extreme cases the inlet conditions may not be able to be compensated for using the caliberation adjustment. In these cases CFM controlled opperation may have to be forfit and the unit run in open-loop mode.





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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 6/32
CHKD	PRODUCT	DRAWING NAME		
	SSLFHFD-FFU, SSLFHFD-FFU-MEA			SCL 1:10
APRVD 03/04/22	SIZE	1		DO NOT SCALE

Cleaning the Fan Filter Unit Pre-filter

(when applicable)

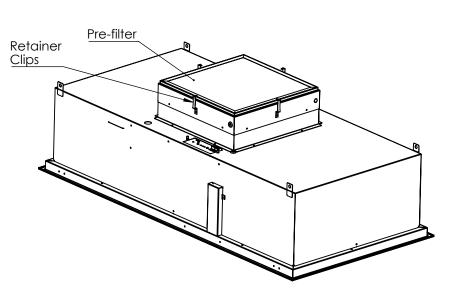


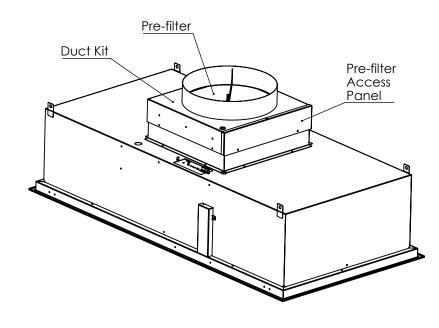
WARNING!

Disconnect the unit from the electrical power source before attempting to service the unit.

Note: For maximum performance, wash pre-filter every three to six months at a minimum.

- Step 1 -- Turn the unit off with the togale switch located on the unit.
- Step 2 -- Disconnect the unit at the power source or at the service panel in accordance with OSHA (LOTO) practices and procedures.
- Step 3 -- For ducted applications, use a driver to remove the screws holding the access panel. Slide the pre-filter out of the duct kit. If the unit is non-ducted, remove the pre-filter from the retainer clips For plenum applications, slide the filter diagonally against two of the retaining clips. This should free the opposite sides. Lift the free corner above the clips and pull the filter out of the remaining two clips.
- Step 4 -- Wash the filter with hot water and a mild detergent and rinse thoroughly. Do not use a caustic solution to clean the filter. Blow dry or let air dry. Filter should be completely dry before reinstalling into unit.
- Step 5 -- Filter installation is the reverse of the removal procedure.







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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 7/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:12
APRVD 03/04/22	SIZE			DO NOT SCALE

Removal and Replacement of the HEPA Filter with Gel Seal

WARNING!

Disconnect the unit from the electrical power source before attempting to service the unit. WARNING!

CRITI-CLEAN ULTRA FAN FILTER UNITS

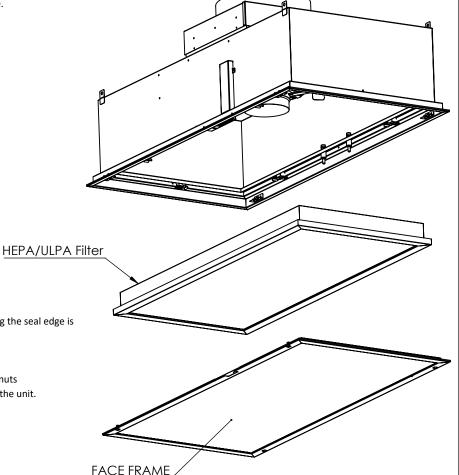
The HEPA filter may be protected by an expanded metal screen. The screen prevents accidental contact with the filter media. It is not meant to allow handling of the filter by the media. Handle the filter ONLY by the frame.

NOTE: The manufacturer recommends two people to remove and install the HEPA filter in the unit.

- Step 1 -- Using a flat screwdriver, release the face frame by rotating the four (4) fasteners a 1/4-turn counter clock-wise. Unhook the safety cables from the filter clips. Set the frame aside.
- Step 2 -- Turn the unit off with the switch located on the face of the unit (round, black button).
- Step 3 -- Disconnect the unit at the power source or at the service panel in accordance with OSHA (LOTO) practices and procedures.
- Step 4 -- USE TWO PEOPLE TO SUPPORT THE FILTER and rotate the swingarm filter clips off of the filter until clip is clear of the filter.
- Step 4 ALT (if stud style filter clips) -- Using a 7/16" nut-driver, evenly loosen the nuts holding the filter retaining clips by working your way around the unit loosening the nuts a little at a time. To make installing the new filter easier, loosen the nuts until flush with the end of the threaded stud. USE TWO PEOPLE TO SUPPORT THE FILTER and rotate the filter clips toward the offset hole until clip is clear of the filter.
- Step 5 -- Allow gravity to pull the filter away from the unit. If installing a new filter discard the filter in an appropriate manner.
- Step 6 -- Unpack the new filter and inspect for shipping damage. If damage is found, do not install in unit; call the vendor for replacement arrangements.
- Step 7 -- Using two people, raise the filter into place in between the filter guides (or threaded posts if stud style) assuring the seal edge is approximately in the center of the gel channel.
- Step 8 While supporting the filter by its frame, rotate the filter clips so that the clips are supporting the frame and are at 90° to the frame. (ALT--Evenly tighten the nuts by working your way around the unit tightening the nuts a little at a time. Stop tightening when the aluminum filter frame contacts the stainless steel housing frame of the unit.

 DO NOT OVER TIGHTEN). Wait at least 30 minutes before performing any challenge testing to allow the gel to fully adhere to the unit.
- Step 9 -- Inspect all gaskets and seals for integrity. Reconnect power and turn unit power on.

Step 10 -- Raise the face frame back into place, reattach the safety chains, and secure 1/4-turn fasteners.





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DRAWN BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL	TAG	QTY	REV# F SHT 8/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:12
APRVD 03/04/22	SIZE	•		DO NOT SCALE

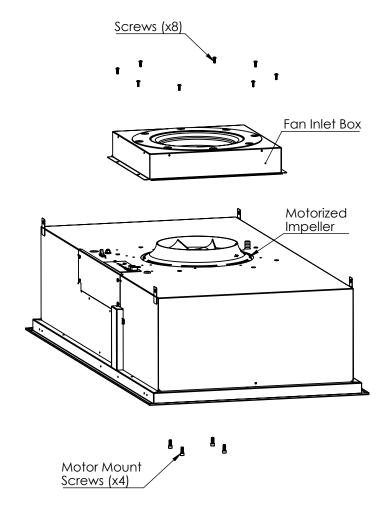
Removal and Installation of the Variable Speed Motor (SSLFHFD-FFU)

CRITI-CLEAN ULTRA

WARNING!

Disconnect the unit from the electrical power source before attempting to service the unit.

- Step 1 -- Turn the unit off with the switch located on the face of the unit.
- Step 2 -- Disconnect the unit at the power source or at the service panel in accordance with OSHA (LOTO) practices and procedures.
- Step 3 -- Remove the HEPA filter and set aside. See sections 2 and 3 for instructions.
- Step 4 -- Disconnect the 3-pin power plug and the 4-pin data plug from the electrical box.
- Step 5 -- Use a 4 mm hex driver to remove the four (4) screws holding the motor to the motor bracket inside the unit.
- Step 6 -- Remove the duct from the unit, if applicable.
- Step 7 -- Use a 5/16" driver to remove the eight (8) screws holding the Fan Inlet Box. Remove Fan Inlet Box and set aside.
- Step 8 -- Lift the motorized impeller out of the unit.
- Step 9-- Reverse above steps to reassemble the motor/fan/ring assembly into the unit.





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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 9/32
CHKD	SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:10
APRVD 03/04/22	SIZE	•		DO NOT SCALE

Removal and Installation of the Variable Speed Motor (SSLFHFD-FFU-MEA)

CRITI-CLEAN ULTRA

WARNING!

Disconnect the unit from the electrical power source before attempting to service the unit.

Step 1 -- Using a flat screwdriver, release the face frame by rotating the four (4) fasteners a 1/4-turn counter clock-wise. Unhook the safety cables from the filter clips. Set the frame aside.

Step 2 -- Turn the unit off with the switch located on the frame of the unit.

Step 3 -- Disconnect the unit at the power source or at the service panel in accordance with OSHA (LOTO) practices and procedures.

Step 4 -- Remove the HEPA filter and set aside. See sections 2 and 3 for instructions.

Step 5 -- Disconnect the 3-pin power plug and the 4-pin data plug from the electrical box.

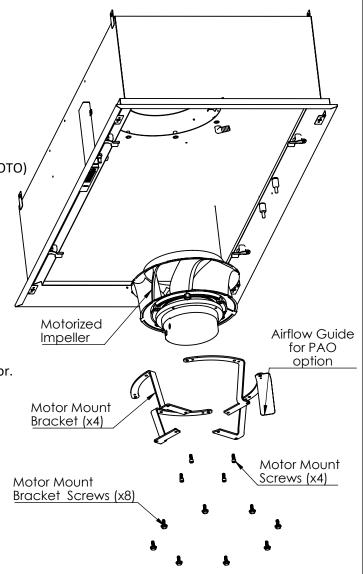
Step 6 -- Use a 7/16" driver to remove the eight (8) motor mount bracket screws.

Step 7 -- Lower the motor/bracket assembly out of the unit.

Step 8 -- Use a 4 mm hex driver to remove the four (4) screws holding the motor brackets to the motor.

03/04/22

Step 9 -- Reverse above steps to reassemble the motor/fan/ring assembly into the unit.





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		• •	
DRAWN	CATEGORY	TAG	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL		SHT 10/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME	SCL 1:10
APRVD	SIZE	I	DO NOT

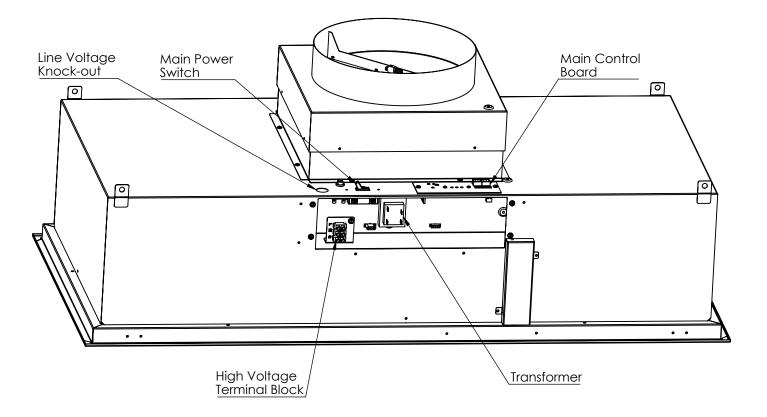
Access to Electrical Components (SSLFHFD-FFU-STD)

WARNING!

CRITI-CLEAN ULTRA
FAN FILTER UNITS

Disconnect the unit from the electrical power source before attempting to service the unit.

- -- Turn the unit off with the switch located on the electrical box.
- -- Disconnect the unit at the power source or at the service panel in accordance with OSHA (LOTO) practices and procedures.





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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 11/32
CHKD	PRODUCT	DRAWING NAME		
	SSLFHFD-FFU, SSLFHFD-FFU-MEA			SCL 1:7
APRVD	SIZE			DO NOT
03/04/22				SCALE

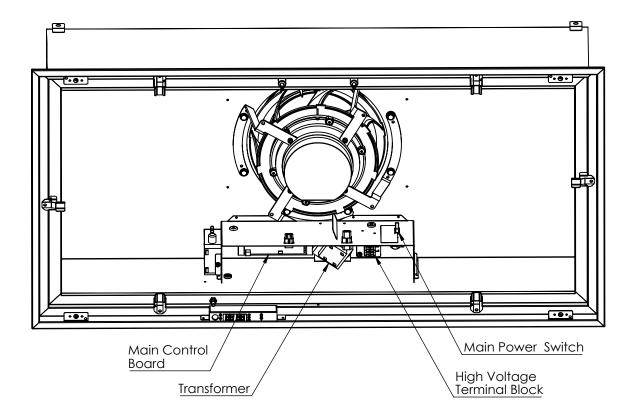
Access to Electrical Components (SSLFHFD-FFU-MEA)

CRITI-CLEAN ULTRA FAN FILTER UNITS

WARNING!

Disconnect the unit from the electrical power source before attempting to service the unit.

- -- Turn the unit off with the switch located on the electrical box.
- -- Disconnect the unit at the power source or at the service panel in accordance with OSHA (LOTO) practices and procedures.





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DRAWN BRS/SLG	CATEGORY CRITI-CLEAN ULTRA INSTALLATION MANUAL	TAG	QTY	REV # F SHT 12/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:8
APRVD 03/04/22	SIZE	•		DO NOT SCALE

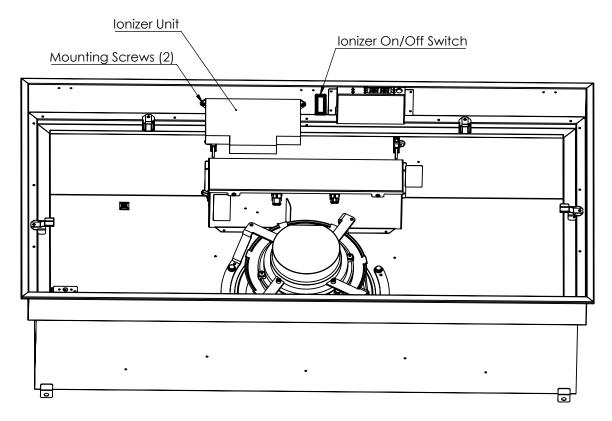
Bi-Polar Ionizer

CRITI-CLEAN ULTRA FAN FILTER UNITS

WARNING!

Disconnect the unit from the electrical power source before attempting to service the unit.

- -- Turn the unit off with the switch located on the electrical box.
- -- Disconnect the unit at the power source or at the service panel in accordance with OSHA (LOTO) practices and procedures.
- Ionizer is running when fan filter is powered on unless the ionizer switch is OFF.
- Using a philips screw driver, remove the Ionizer before installing or removing filter.
- For more information, see the instruction for the ionizer.





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DRAWN BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL	TAG	QTY	REV # F SHT 13/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:8
APRVD 03/04/22	SIZE	•		DO NOT SCALE

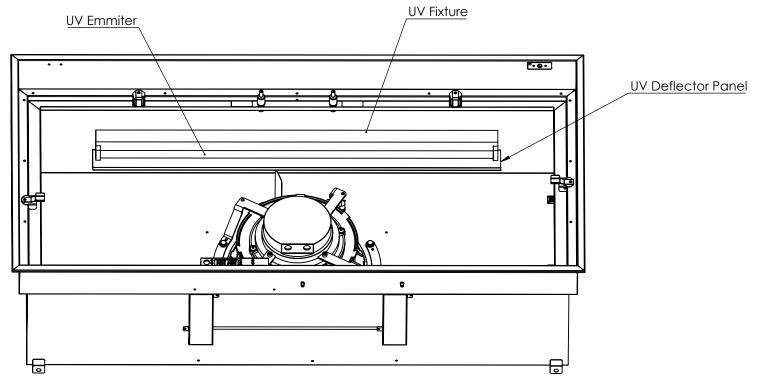
UV-C Fixture

CRITI-CLEAN ULTRA FAN FILTER UNITS

WARNING!

Disconnect the unit from the electrical power source before attempting to service the unit.

- -- Turn the unit off with the switch located on the electrical box.
- -- Disconnect the unit at the power source or at the service panel in accordance with OSHA (LOTO) practices and procedures.
- UV Emitter is on when fan filter is powered on unless the safety switch is OFF.
- The safety switch is closed when the HEPA filter is installed. The UV will shut off when the filter is removed.
- It is recommended that the UV emitter is replaced when the filter is replaced and vice versa.
- For more information, see the instruction for the UV fixture.





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DRAWN BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL	TAG	QTY	REV # F SHT 14/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME	-	SCL 1:8
APRVD 03/04/22	SIZE	•		DO NOT SCALE

Removal of Main Control Board

WARNING!

Disconnect the unit from the electrical power source before attempting to service the unit.



FAN FILTER UNITS

- Step 1 -- Access the unit's electrical box per instructions based on the model you have. (See pages 11-12)
- Step 2 -- Remove the two screws holding the control board face plate to the fan filter unit.
- Step 3 -- If applicable, disconnect the CAT5e cables from RJ45 jacks on the front of the board.
- Step 4-- Disconnect the motor (red 4-pin plug), the face control board (red 5-pin plug), and the safety switch (red 2-pin plug) from the main control board by pulling the plug straight out from the board.
- Step 5 -- Using a small blade screwdriver, disconnect power supply wires from the control board terminal block.
- Step 6 -- To install a new board, repeat above steps in reverse order.

MOTOR PLUG

POWER TERMINAL BLOCK



RJ45 JACKS





SAFETY SWITCH PLUG

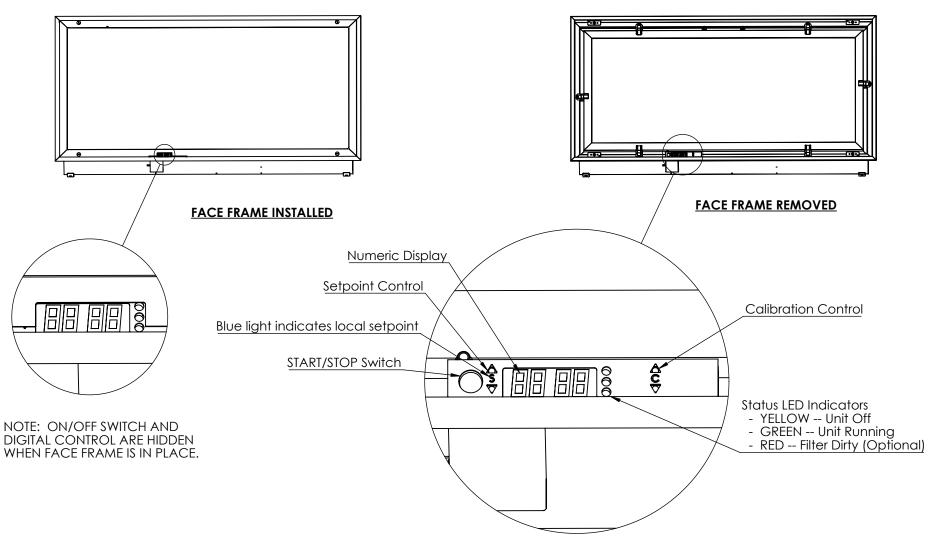
FACE DISPLAY/CONTROL BOARD PLUG



AJ Manufacturing

DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 15/32
CHKD	SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:10
APRVD 03/04/22	SIZE	•		DO NOT SCALE

CRITI-CLEAN ULTRA FAN FILTER UNITS





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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 16/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:15
APRVD 03/04/22	SIZE	•		DO NOT SCALE

FUSE

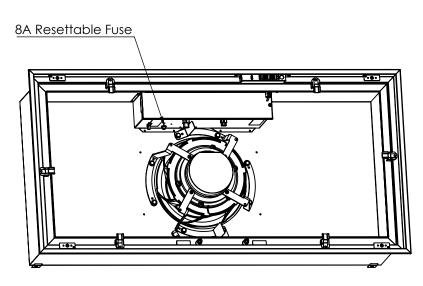


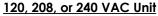
Each fan filter is equipped with an 8 Amp resettable or 5 Amp cartridge fuse to protect the unit from electrical spikes. The fuse is located on the plaster frame close to the display board.

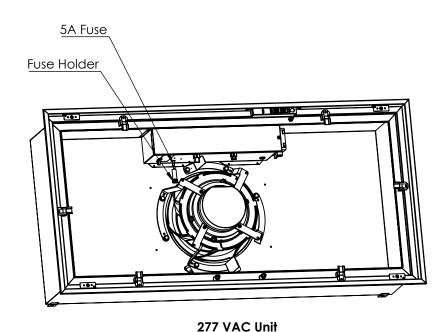
The cartidge fuse can be removed by turning the fuse holder counterclockwise a 1/4-turn. Remove the fuse fromt he fuse holder and discard. Insert new fuse and replace fuse holder.

NOTE: 277VAC units have a 5 A cartridge fuse. Others have a 8 A resettable fuse.

NOTE: If the unit is installed in an area with no access above the ceiling, the main power switch must be turned on before installing into the ceiling.









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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 17/32
CHKD	PRODUCT	DRAWING NAME		
	SSLFHFD-FFU, SSLFHFD-FFU-MEA			SCL 1:12
APRVD	SIZE	•		DO NOT
03/04/22				SCALE

PAO CHALLENGE SYSTEM

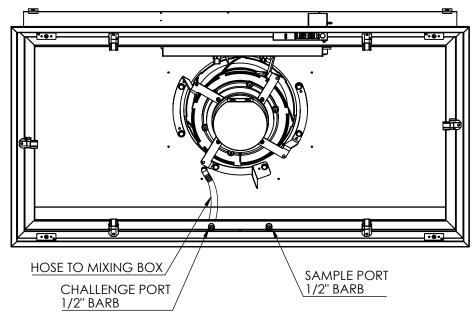


An optional PAO Challenge Manifold System is available to provide a reliable, convenient method of performing a challenge test of the fan filter unit at the face.

**These instructions are to assist a qualified technician in testing the leakage of the fan filter unit. Filter should be installed for a minimum of 30 minutes before test is performed

- Step 1 -- Use a flat screwdriver to release the face frame by rotating the four (4) fasteners a 1/4-turn counter clock-wise.

 Unhook the safety cables from the filter clips. Set the frame aside.
- Step 2 -- Remove the cap from the PAO concentration port (labeled "Concentration"). Attach UPSTREAM hose (1/2" ID; thin wall) from photometer to PAO concentration port.
- Step 3 -- Remove the cap from PAO challenge supply port (labeled "Challenge"). Attach DOWNSTREAM hose (1/2" ID; thin wall) from PAO aerosol generator to PAO concentration supply port.
- Step 4 -- Conduct the challenge test per the site requirements. Equipment is designed to pass IEST-RP-CC034 current revision standards.
- Step 5 -- Disonnect hoses from ports and securely replace caps.
- Step 6 -- Raise the face frame back into place, reattach the safety chains, and secure quarter-turn fasteners.





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DRAWN	CATEGORY	ITAC	IOT/	
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL	TAG	QTY	REV# F
-,				SHT 18/32
CHKD	SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:10
APRVD 03/04/22	SIZE	•		DO NOT SCALE

CONTROLS

CRITI-CLEAN ULTRA

The fan filter unit can be controlled through various inputs:

- 1. Local setpoint control (blue light behind S will be lit on face display)
 - Adjust airflow from the face. When adjusting the setpoint will be displayed and the four decimal points will be lit to indicate sepoint.
 - Local setpoint, no face display. If not equipped with a face display and locally controlled, the POT on the EC Motor Control Board is used.
 - To toggle between local control and external control hold the Start/Stop button for 10 seconds. When released the blue light with change.
- 2. Individual unit wall mounted control (must be determined before ordering)
- 3. 0 10V/0 5V DC Control
- 4. 0 20mA/4 20mA Control
- 5. Full range of network controls including connection to BAS/BMS through MODBUS RTU RS485 control BACNet IP, BACNet MS/TP, & LONWorks available with additional hardware

Additionally, monitoring and control of the FFU can be done through closed loop control from sensors such as pressure transducers, thermostats, partical counters, etc.

This manual will give basic information on how to connect controls and sensors to the unit. For more details refer to the instructions included with the controller or sensors.

SIGNAL BEHAVIOUR

The Network CFM Setpoint is read and written directly in units of CFM.

External analog signals are scaled to a minimum and maximum airflow when in CFM control mode. IE: 0-5VDC 2.5VDC=0.5 of full range. = 0.5*unit maximum CFM.

When operated from an external setpoint or network value 0-10% is reserved for local over-ride of the EC Moctor Control board POT so the unit can be adjusted from the main control board. 10%-20% is reservered for the remote Off Signal.

INP1/ANA1 Input		t Control Function: % of Input Range		
Range	Units	ECM Control Pot 0-10%	Remote Off 10-20%	External Setpoint 20-100%
0-5	Volts	0 to 0.5	0.5 to 1.0	1.0 to 5.0
0-10	Volts	0 to 1.0	1.0 to 2.0	2.0 to 10.0
0-20	mΑ	o to 2.0	2.0 to 4.0	2.0 to 20.0
4-20	mA	0 to 5.6	5.6 to 7.2	7.2 to 20.0



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8701 Elmwood Avenue #400 Kansas City, MO 64132 Phone: (816) 231-5522 Fax: (816) 231-8437

DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 19/32
CHKD	PRODUCT	DRAWING NAME		
	SSLFHFD-FFU, SSLFHFD-FFU-MEA			SCL 1:10
APRVD	SIZE	•		DO NOT
03/04/22				SCALE

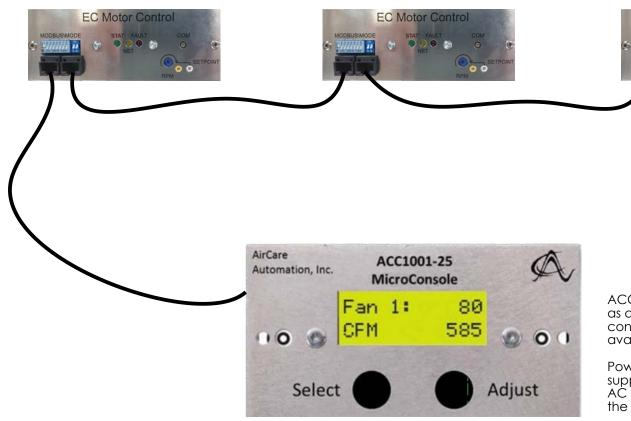
NETWORKING

CRITI-CLEAN ULTRA FAN FILTER UNITS

EC Motor Control

When networking the fan filter units either in a local area network (LAN) or connecting to a BAS/BMS system, each unit is connected in a "straight-through" daisy-chain using Cat5e or Cat6 network cables and the on-board RJ45 connectors.

If field cutting network cables, it is important for each end of the cable to be wired identically. However, assembled network cable are available; field assembled cables are the leading cause of problems in new systems.



ACC1001 control used as an example. Other controller options available.

Power to the controller is supplied through an wall AC adapter supplied with the controller.

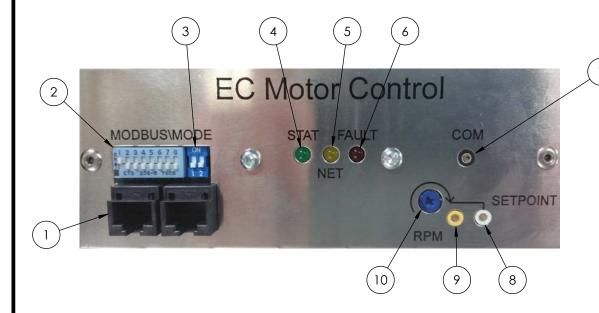


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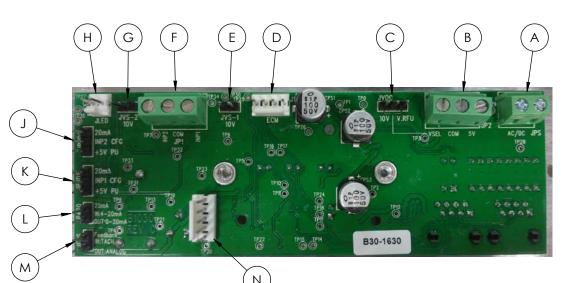
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BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 20/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:10
APRVD	SIZE			DO NOT
03/04/22				SCALE

CRITI-CLEAN ULTRA

FAN FILTER UNITS



- 1. RJ45 Dual Jacks
- 2. Modbus Address DIP Switches
- 3. S1-1 and S1-2 Configuration DIP Switches
- 4. STATUS LED
- 5. NET LED (network activity)
- 6. FAULT LED
- 7. Mulitmeter Common
- 8. Multimeter Setpoint as mVDC
- 9. Multimeter CFM as mVDC
- 10. Onboard Setpoint Potentiometer



- A. JPS: Bias input power, isolated
- B. JP2: Accessory output voltages
- C. JVDC: Selector for 10V regulated or unregulated rectified and filtered bus voltage
- D. J1: EC Motor Port
- E. JVS-1: INP1 10V signal range selector
- F. JP1: INP1 and INP2 analog/digital inputs
- G. JVS-2: INP2 10V signal range selector
- H. JLED: External FAULT output
- J. JPUD2: INP2 digital input pull-up or 20mA signal format selector
- K. JPUD1: INP1 digital input pull-up or 20mA signal format selector
- L. JP420: 0-20mA or 4-20mA signal format selector
- M. JFBS: TACH or Analog 2 feedback signal selector
- N. Aux Board Port



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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 21/32
CHKD	PRODUCT	DRAWING NAME		
	SSLFHFD-FFU, SSLFHFD-FFU-MEA			SCL 1:10
APRVD	SIZE	•		DO NOT
03/04/22				SCALE

NETWORKING

CRITI-CLEAN ULTRA

DIP SWITCH SETTINGS

Each fan filter unit in a network must be set to a unique address between 1 and 247. Addresses 248- 255 are declared reserved per MODBUS protocol. A DIP switch block of eight switches are used for addressing. The control board supports Modbus Broadcast Address Zero for single and multiple register write commands (Modbus Function Codes 6 and 16).

Address settings are checked by the board controller only at power-up, so power must be cycled before any changes take effect.

Analog input setpoint modes preserve the ability to monitor and modify register values using a suitable controller console or PLC.

Therefore, addressing may be relevant for configuration, monitoring and/or troubleshooting even when units are intended to be used with analog setpoint input.



When adjusted to the ON position, each DIP switch pole represents a value as follows:

DIP Switch Pole	Value
1	1
2	2
3	4
4	8
5	16
6	32
7	64
8	128

Calculate the address value of existing switch settings by adding the values of each DIP switch pole in the ON position, per the table at left.

Construct switch settings for a desired address value by successively subtracting the largest pole value that is less than the desired address value, repeating with each remainder until the remainder is zero. An example is provided below.

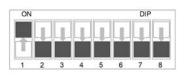
Example: Desired address is 114

$$114 - 64 = 50$$
 SW1-7 ON
 $50 - 32 = 18$ SW1-6 ON
 $18 - 16 = 2$ SW1-5 ON
 $2 - 2 = 0$ SW1-2 ON

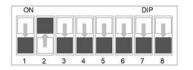


03/04/22

*See page 23 for more examples



1

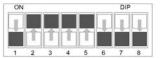


2



3





30

REV# F

SHT 22/32

SCL 1:10

DO NOT



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DRAWN	CATEGORY	TAG	QTY
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL		
CHKD	PRODUCT	DRAWING NAME	
	SSLFHFD-FFU, SSLFHFD-FFU-MEA		
APRVD	SIZE		

CONFIGURATION DIP SWITCHES \$1-1 & \$1-2

Switch	\$1-1	\$1-2
SWIICH	Control Loop Mode	Setpoint Source
OFF	Open-Loop Control	Analog Setpoint
ON	Closed-Loop Control	Network Setpoint

CRITI-CLEAN ULTRA
FAN FILTER UNITS

Open-Loop -- Fan filter unit is controlled by a controller, i.e. on-board potentiometer or network controller.

Closed-Loop -- A sensor is used to maintain airflow, i.e. room pressure, roomtemp, or a particle counter.

Analog Setpoint -- Unit is controlled with an analog contoller, i.e. on-board potentiometer or individual wall mounted controller (must be determined before ordering)

Network Setpoint -- Unit is controlled with a networked controller, i.e. ACC1 or ACM7052 touchscreen controller

SENSOR SHUNT TABLES

Shunt JP420		JFBS	JVS-1*	JVS-2*
OUT	0 - 20mA	ANALOG	0 - 5VDC	0 - 5VDC
IN	4 - 20mA	N/A	0 - 10VDC	0 - 10VDC

*Leave shunt out if using a 0-20mA or 4-20mA sensor.

Shunt Table for JP1 wiring block

Center Pin to	JPUD1:INP1	JPUD2:INP2
No connection	ANALOG 5V or 10V	ANALOG 5V or 10V
20mA	ANALOG 20mA	ANALOG 20mA
+5V PU	DIGITAL 10kΩ pull-up TO 5V	DIGITAL 10kΩ pull-up TO 5V

Shunt Table for JP2 wiring block

Center Pin to	JVDC	
No Connection	VSEL = no connection; open	
10V	VSEL = 10V regulated	
V.RFU	VSEL = DC filtered, unregulated, ~33VDC	

NOTES:

- JP1 is for signal input
- JP2 is for output power
 - connect COM/5V --> 5V power supplied
 - connect COM/VSEL with 10V shunt -->
 - 10V power supplied
 connect COM/VSEL with V.RFU shunt -->
 Full wave rectified power supplied
 (~33VDC)
- INP1 on JP1 wiring block is for monitoring only
 - 0 10VDC
 - 0 5VDC
 - 0 20mA
 - 4 20mA
- INP2 on JP1 wiring block is for closed-loop feedbackor monitoring
 - Controling airflow by room pressure or particle counter



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DRAWN BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL	TAG	QTY	REV# F
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SHT 23/32 SCL 1:10
APRVD 03/04/22	SIZE	•		DO NOT SCALE

AIRFLOW SENSOR WIRING



ISHUNT INP2 CFG FROM CENTER PIN TO +5V PU

IRED WIRE FROM SENSOR TO INP2

BLACK WIRE FROM SENSOR TO 5VI

WHITE WIRE FROM SENSOR TO COMI



طمانيد	\$1-1	\$1-2
Switch	Control Loop Mode	Setpoint Source
OFF	Open-Loop Control	Analog Setpoint
ON	Closed-Loop Control	Network Setpoint



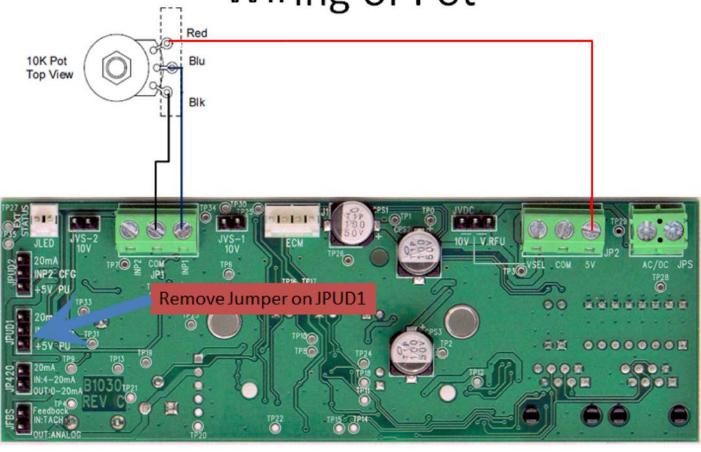
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DRAWN BRS/SLG	CATEGORY CRITI-CLEAN ULTRA INSTALLATION MANUAL	TAG	QTY	REV # F SHT 24/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME	_	SCL 1:10
APRVD 03/04/22	SIZE	•		DO NOT SCALE

WIRING A REMOTE MOUNTED POT TO CONTROL BOARD



Wiring of Pot





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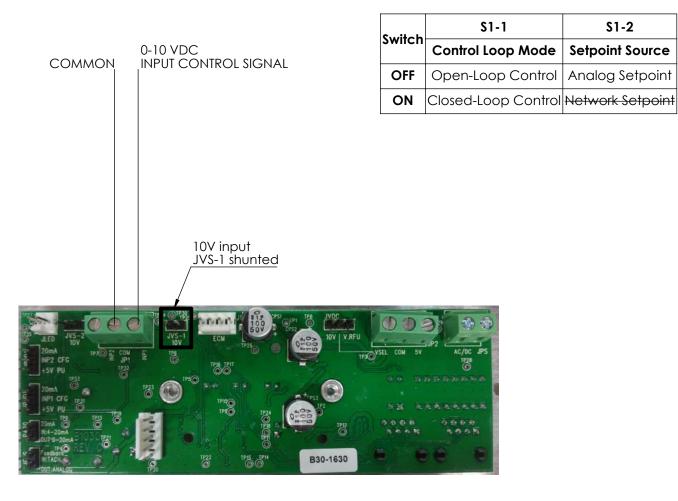
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-, -	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 25/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:10
APRVD 03/04/22	SIZE			DO NOT SCALE

WIRING OF 0 -10 VDC INPUT SIGNAL TO **CONTROL FAN SPEED**



S1-2

Setpoint Source



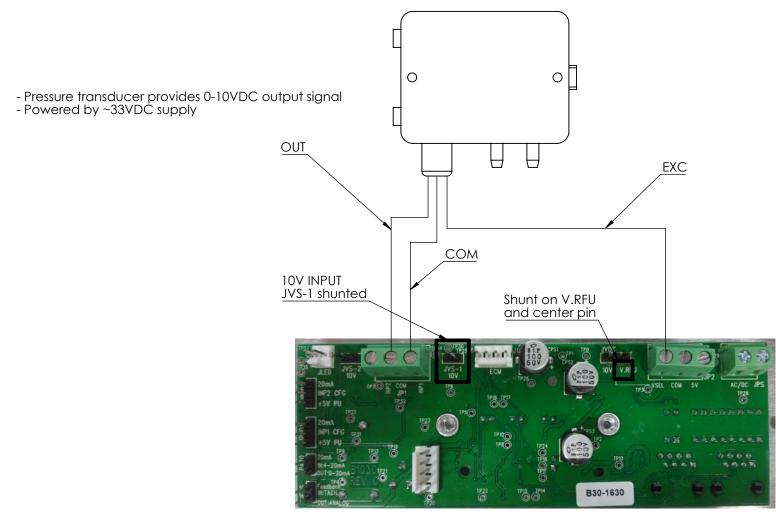


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DRAWN BRS/SLG	CATEGORY CRITI-CLEAN ULTRA INSTALLATION MANUAL	TAG	QTY	REV# F
CHKD	PRODUCT	DRAWING NAME		SHT 26/32
CHKD	SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:10
APRVD 03/04/22	SIZE	•		DO NOT SCALE

EXAMPLE OF WIRING A PRESSURE TRANSDUCER TO CONTROL BOARD FOR FEEDBACK OR MONITORING THROUGH CONTROLLER







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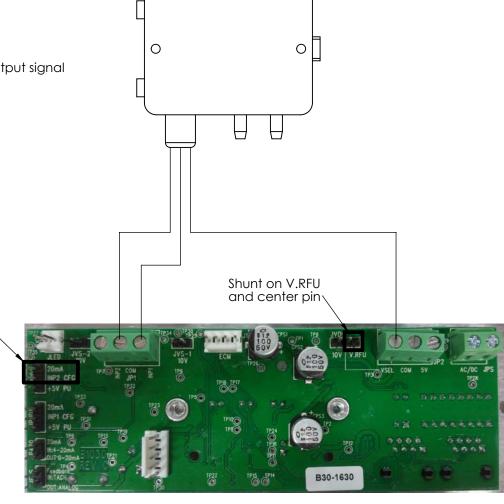
DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 27/32
CHKD	PRODUCT SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:10
APRVD	SIZE			DO NOT
03/04/22				SCALE

EXAMPLE OF WIRING A SENSOR TO CONTROL BOARD FOR FEEDBACK OR MONITORING THROUGH CONTROLLER





- Powered by ~33VDC supply





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Shunt Middle and 20mA

DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 28/32
CHKD	SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:10
APRVD 03/04/22	SIZE	•		DO NOT SCALE



Testing

Each fan filter unit is thoroughly tested at the factory before shipment. However, many codes and standards require testing for bypass leakage after installation. The manufacturer encourages that the customer contact an independent, certified testing organization with technicians that are trained and experienced in performance, evaluation, and maintenance of clean air equipment.

The manufacturer recommends at least 30 minutes elapse after HEPA/ULPA filter installation before performing any type of challenge leak testing. The unit should be sealed to the ceiling and the room should have a positive pressure held during testing and normal operation.

Trouble Shooting

Low Airflow

- If optional red HEPA-lert LED light is on, replace the HEPA filter.
- Inspect the pre-filter. Clean or replace as necessary.
- Adjust the digital speed control for higher airflow output.
- Check the power supply for proper voltage, amperage, and distribution frequency
- Verify dip switches are correct for type of controls used.
- Replace HEPA filter if airflow remains low.

High Airflow

- Adjust digital speed control for lower output.
- Verify dip switches are correct for type of controls used.

Non-Laminar Airflow and/or Excessive Contamination

- Ensure that upstream airstream is clear of large obstructions.
- Ensure that no other air moving devices are operating in such a way to disrupt the room's airflow pattern.
- Check airflow and if not desired airflow see above.
- Conduct smoke or photometer test on HEPA filter and gel seal. Seal or replace the HEPA filter as necessary.

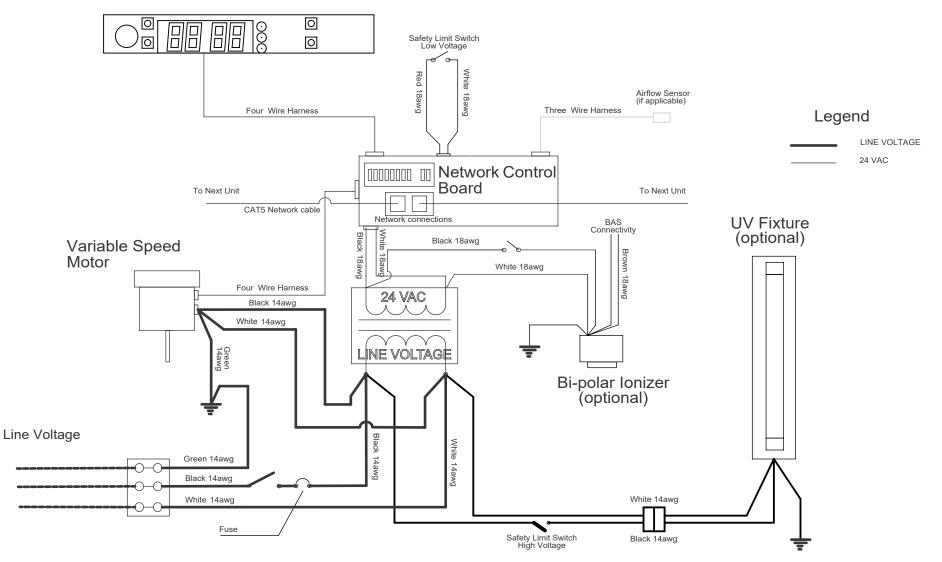


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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 29/32
CHKD	PRODUCT	DRAWING NAME		
	SSLFHFD-FFU, SSLFHFD-FFU-MEA			SCL 1:10
APRVD	SIZE	•		DO NOT
03/04/22				SCALE

CRITI-CLEAN ULTRA FAN FILTER UNITS

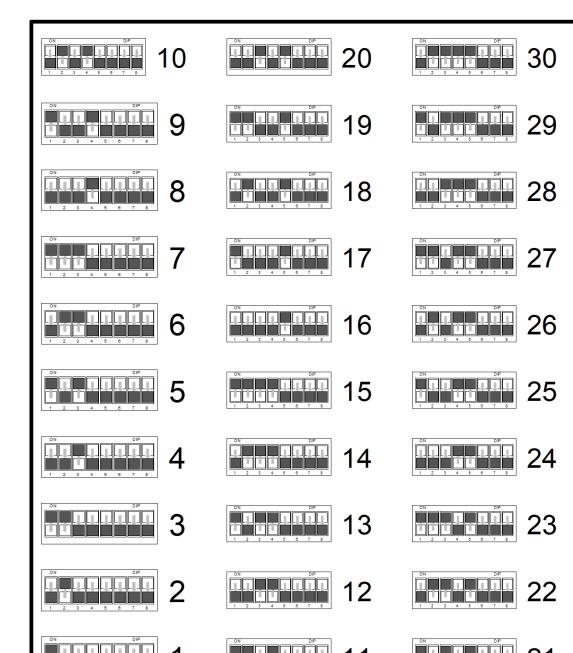
Digital Speed Control/ Display Board (on Face)





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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 30/32
CHKD	PRODUCT	DRAWING NAME	-	0111 00/02
	SSLFHFD-FFU, SSLFHFD-FFU-MEA			SCL 1:1.2
APRVD	SIZE	L		DO NOT
03/04/22				SCALE



CRITI-CLEAN ULTRA FAN FILTER UNITS

DIP SWITCH SETTINGS FOR UP TO 30 FAN FILTER UNITS FOR MORE UNITS SEE BELOW.

Calculate the address value of existing switch settings by adding the values of each DIP switch pole in the ON position, per the table below.

Construct switch settings for a desired address value by successively subtracting the largest pole value that is less than the desired address value, repeating with each remainder until the remainder is zero. An example is provided below.

DIP Switch Pole	Value
1	1
2	2
3	4
4	8
5	16
6	32 64
7	64
8	128

Example: Desired address is 114

114 - 64 = 50 SW1-7 ON 50 - 32 = 18 SW1-6 ON 18 - 16 = 2 SW1-5 ON2 - 2 = 0 SW1-2 ON

64+32+16+2 = 114



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	1 2	3 4	5	6 7	8	2	•
DRAWN			CA	TEGO	RY		
BRS/SLC	7		\Box	RITI-0	CLF	AN I	J

2	DRAWN	CATEGORY	TAG	QTY	REV# F
,	BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 31/32
	CHKD	PRODUCT	DRAWING NAME		
		SSLFHFD-FFU, SSLFHFD-FFU-MEA			SCL 1:10
	APRVD	SIZE	I .		DO NOT
	03/04/22				SCALE



WARRANTY

LIMITED WARRANTY

AJ Manufacturing Co. Inc. warrants to Buyer, or any person receiving products originating from our factory, that the goods at time of shipment will be free from defects of material and workmanship for normal use and service. This warranty does not extend to goods subjected to misuse, neglect, accident, or improper installation, or to maintenance of products which have been altered or repaired by anyone except Seller, Buyer, or any persons receiving such a product during the duration of the warranty and shall contact AJ Manufacturing as soon as any defect becomes known. AJ's sole obligation under the foregoing warranty shall be limited to; at its option: Repair or replace defective goods provided, however that if AJ is unable to correct a defective component part or product after a reasonable number of attempts, the Buyer shall be entitled to elect a refund at original Buyer's purchase. CHARGES ACCRUED AGAINST SELLER'S ACCOUNT WITHOUT PRIOR APPROVAL OF SELLER WILL NOT BE PAID BY SELLER. If after notifying AJ of defect, Buyer returns goods to AJ for repair and AJ determines that it has not breached the foregoing warranty, the Buyer will be assessed AJ regular reconditioning charges.

AJ SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES ARISING FROM DEFECTIVE EQUIPMENT.
THIS EXPRESS WARRANY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, GUARANTEES, OR REPRESENTATIONS, EXPRESSED OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE.



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DRAWN	CATEGORY	TAG	QTY	REV# F
BRS/SLG	CRITI-CLEAN ULTRA INSTALLATION MANUAL			SHT 32/32
CHKD	SSLFHFD-FFU, SSLFHFD-FFU-MEA	DRAWING NAME		SCL 1:10
APRVD 03/04/22	SIZE	•		DO NOT SCALE