GLOBAL PLASMA SOLUTIONS

iMOD

Installation

Operation &

Maintenance

Manual

10 Mall Terrace, Building C
Savannah, GA 31406
(912) 356-0115 Phone
www.globalplasmasolutions.com

DO NOT POWER UNTIL INTERNAL VOLTAGE SELECTOR SWITCH IS CONFIRMED IN THE CORRECT POSITION!!!!!!

INSTALLATION

Thank you for purchasing a GPS iMOD system from Global Plasma Solutions (GPS). The GPS iMOD is a revolutionary product in the air purification industry. Unlike traditional ionization systems utilizing glass tubes, the GPS iMOD is manufactured from high quality components to prevent wear, replacement and ozone generation. The system is designed to provide a long trouble free life.

HARDWARE PROVIDED BY GPS

Before you start, confirm the contents of your shipment contains all the parts ordered. Each GPS iMOD system will consist of the following minimum components:

1. (1) GPS iMOD 15 watt power supply with multi-voltage input: (24VAC / 0.5A) (120VAC / 0.12A) (208-240VAC / 0.065A).

2. (1) GPS iMOD 6' flexible power cable with connectors and first electrode on the bar already attached. Custom length cables may have been ordered and lengths may vary by application. More than 1 may be provided based on AHU size.

3. GPS iMOD 6 inch modular sections provided per quantities ordered to achieve overall desired ionization bar length.

4. (1) End cap per completed modular bar. End cap inserts into the last modular section of the bar.

4. A minimum of (2) mounting magnets per bar for securing the GPS iMOD to the cooling coil inlet or filter rack. Secure magnets to the modular sections. Magnet quantity provided will increase based on overall bar length.

HARDWARE REQUIRED BY OTHERS

1. Self tapping sheet metal screws

2. Electric wiring, jbox or receptacle to provide power to the GPS iMOD power supply, optional air flow switch, optional door switch, optional remote mounted ion detector sensor, or optional NEMA enclosure for power supply. Note: optional items may be included based on the items quoted or provided in the purchase order.

INSTALLATION LOCATION

GPS recommends mounting the GPS iMOD downstream of a MERV 6, 30% particulate filter to prevent unnecessary build-up of particulate on the carbon fiber needle tips. Below is a list of locations to mount the GPS iMOD in the preferred order.

1. The optimal location to mount the GPS iMOD is between the particulate filter and the cooling coil. Mounting the GPS iMOD in this location will prevent particulate build-up and the GPS iMOD mounted before the cooling coil will prevent bacteria, virus and mold from breeding on the cooling coil as the ions will be pulled through the coil with the air flow.

2. Downstream of the particulate filters and the cooling coil in a location where condensate from the coil or a humidifier will not completely saturate the bar. While the modular bar is waterproof, if the carbon fiber brushes are saturated with water from condensate, ionization output will be reduced.

3. Before the particulate filters. Please note, if the bar is mounted before the particle filters, the ionization will not go past the particle filters. In healthcare applications, 2 sets of bars are suggested, one set on the coil inlet and one after the final filters.

MECHANCIAL INSTALLATION

For standard IAQ applications, there should be (1) GPS iMOD on each cooling coil up to 60 inches in height. The GPS iMOD(s) may be located closer to each other than 60 inches, but 60 inches is the maximum height they should be placed apart. The bar should be assembled such that the entire finned width of the cooling coil is covered.

1. Once the location has been determined, assemble the modular sections by inserting the male thread into the female receiver of the first modular section already attached to the power entry cable and tighten until the modular housings are securely butted to each other. See Figure 1 below for appearance of correct assembly. Please note, it normally takes 3-4 complete revolutions to assemble properly. Continue this process until they are all assembled to the desired length.

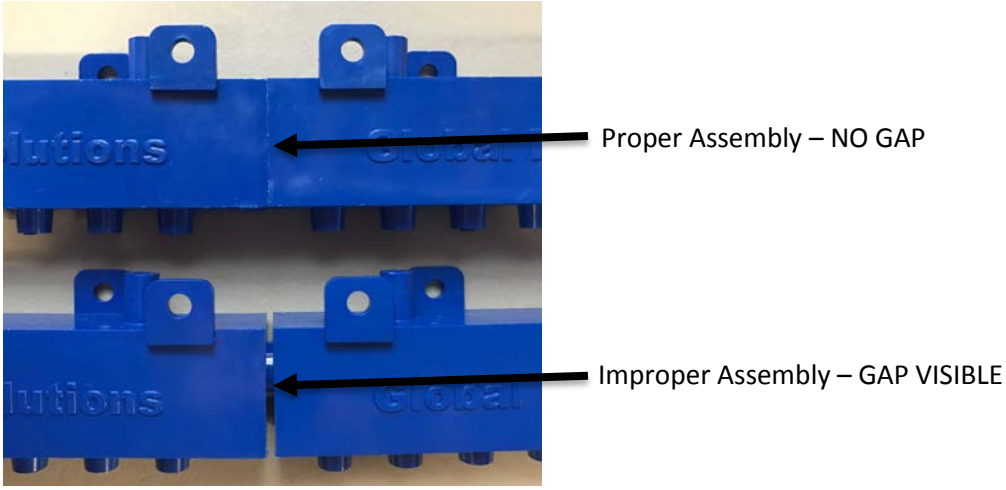


Figure 1

2. Once the last modular section is added, push the nylon connector into the female receiver. It will "snap" into place with sufficient pressure. Refer to Figure 2.

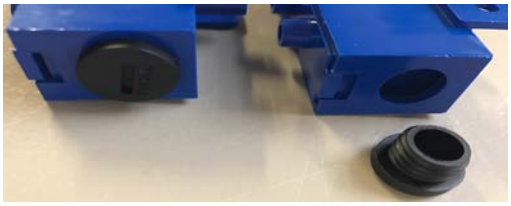


Figure 2

3. The GPS iMOD modular sections can be mounted using the included magnets and hardware or they can be mounted using sheet metal screws, provided by others, through the integral molded brackets. There should be at least one magnet mounted on each end of the bar assembly and depending on length of bar, additional magnets or sheet metal screws may be required. Refer to Figure 3.

Figure 3

4. When mounting the GPS iMOD, the bottom of the GPS iMOD should be level with top of the finned surface area of the coil as shown in Figure 4 with the carbon fiber brushes pointing towards the floor. The ionization bar should always be mounted on the air entering side of the cooling coil. Mounting the bar on the leaving side of the coil (drain pan and wet side) will not keep the coil clean. The GPS iMOD power head may be rotated to provide the best power cord routing based on the installation. Refer to Figure 4A. When more than one bar is required, mount the second bar half way down the coil with the needles pointing towards the floor.

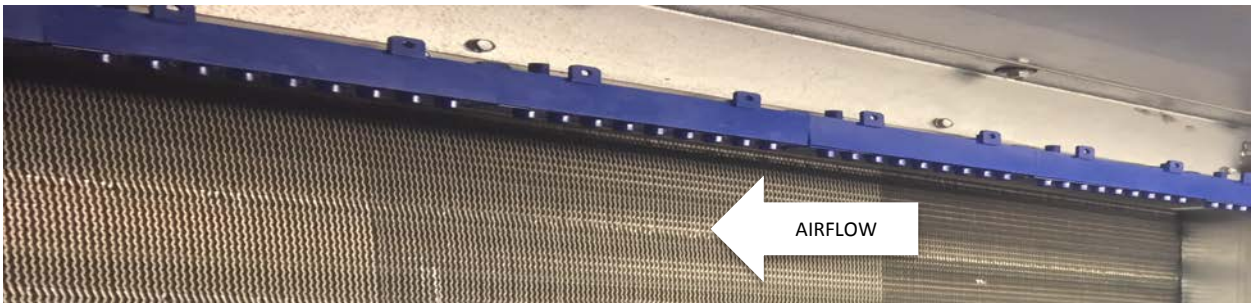


Figure 4

Figure 4A

Power Supply Installation and Wiring – WARNING – DO NOT CONNECT POWER UNTIL VOLTAGE SELECTOR SWITCH INSIDE HOUSING IS CONFIRMED IN THE CORRECT POSITION FOR THE PRIMARY POWER BEING APPLIED!!!

The GPS iMOD system requires a total of 15 watts to power up to (6) GPS iMODs at any length. The power supply will accept 24VAC, 115VAC or 208-240VAC at 50HZ or 60HZ. **CAUTION!! The power supply has an internal voltage selector switch set to 115VAC from the factory, refer to Figure 5. If 24VAC or 208-240VAC is required, move the selector switch to the proper position as shown on the circuit board or inside cover of the power supply lid. DO NOT APPLY POWER until the switch position matches the power supplied. Based on voltage input or local electric codes, the 3 prong plug may be cut off and the three wires are as follow: White = Neural, Black = 24V, 110V or 208-240V (based on switch position) and Green = Ground.**

The power supply may be mounted to the internal wall of the air handler or the external wall of the air handler.

1. Find a suitable location within reach of the high voltage cable extending from the GPS iMOD. Remove the four screws in the lid of the power supply.

2. Mount the power supply to the wall using sheet metal screws through the mounting tabs provided on the power supply.

3. One opening in the high voltage (HV) section will be left open for attachment of the HV wire. Refer to Figure 6. Based on the jobsite specific wiring route, access to the right, left or top side may be desired. Remove the plug from the port desired and fill the port not used with the spare plug. **DO NOT RUN HIGH VOLTAGE INPUT WIRES THROUGH THE CONTROL PORTS AND DO NOT RUN CONTROL WIRING THROUGH HV PORTS! REFER TO FIGURE 5**

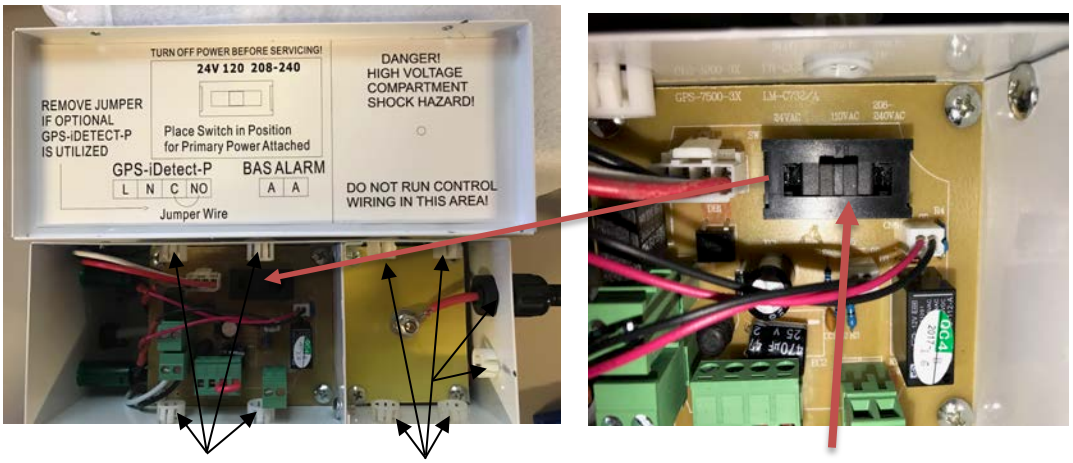


FIGURE 5

CONTROL PORTS HV PORTS VOLTAGE SELECTOR SWITCH

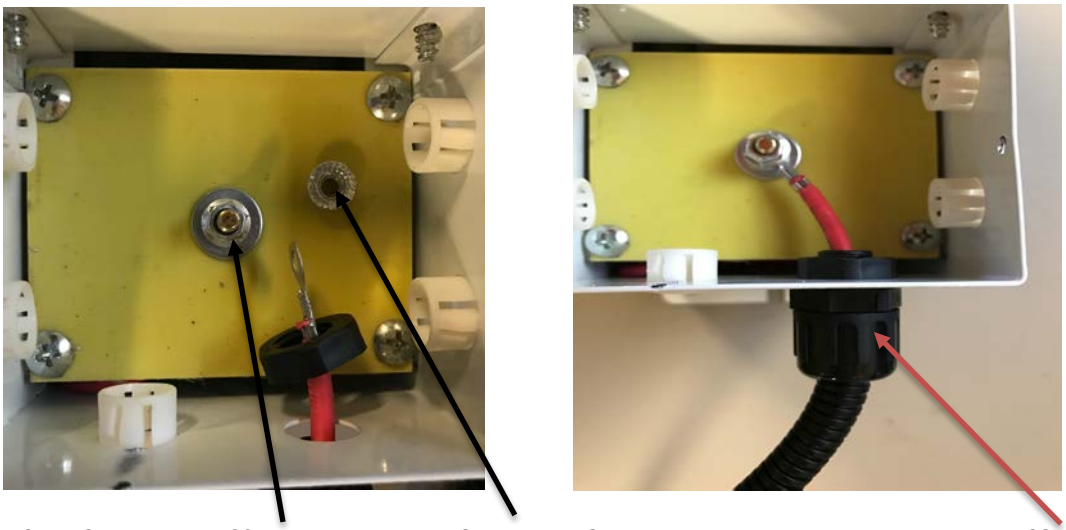


FIGURE 6 HV SCREW AND NUT TOP NUT REMOVED FINAL CONNECTION

4. Remove the top nut from the HV screw. DO NOT REMOVE THE BOTTOM NUT! Remove the plastic nut from the end of the high voltage cable. Next, push the HV wire through the desired port and place the plastic nut back over the HV cable. Place the electrical eye connector over the HV screw and tighten down the top nut to secure. If there are multiple bars connected, place all electrical eye connectors under the top nut prior to tightening. Push the HV connector into the HV port and tighten the plastic nut to secure in place. Once all connections are made, replace lid or connect the control wiring.

CONNECTION TO BMS

1. The GPS iMOD has internal ionization output sensing. Integral alarm "dry" contacts will close when the system is on and operating properly. To tie into the BMS for remote monitoring, use 18/2 twisted pair, plenum rated cable and connect to the BMS ALARM contact terminals. The plug may be removed for ease of wiring. Refer to Figure 7.

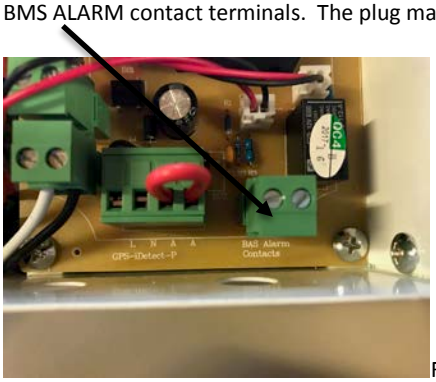


FIGURE 7


FIGURE 8

CONNECTION OF OPTIONAL GPS-iDETECT-P

1. Remove the jumper wire between A and A on the GPS-iDetect terminal block.

2. Using 300V, 18/4, plenum rated cable, wire between the GPS-iDetect-P power and normally open terminals and the GPS iMOD power supply GPS-iDetect-P terminal block as shown in Figure 7.

3. Mount the GPS-iDetect-P using the included 1" coated pipe clamp and secure to a GPS iMOD section as shown in Figure 8 using a nut and bolt.

4. When the GPS-iDetect-P senses output, the "Plasma On" light will illuminate on the front panel of the power supply and the BAS Alarm Contacts will close. When using the GPS-iDetect-P in conjunction with the GPS iMOD power supply, always connect to the BMS using the BMS Alarm Contacts, not the contacts on the GPS-iDetect-P.

OPERATION

1. Once the voltage selector switch has been set, HV wire(s) connected and bar(s) mounted, turn the power switch to the "ON" position. When the switch is turned "On" the "Power On" light will illuminate letting the end user know power is supplied and the GPS iMOD system is energized. Note: If a door switch, fan interlock switch or air flow switch are in series with the power, the system may not turn on until all safeties are closed. When power is supplied and the internal or optional remote mounted GPS-iDetect-P is sensing output, the "Plasma On" light will illuminate.

2. The internal BAS Alarm Contacts will close proving system operation to the BMS.

2. Using a standard non-contact voltage meter, one can place it near the ion needles and prove there is ion output. An optional ion meter can be purchased from GPS and actual values may be measured. A permanent mount ion detector with BAS interface may be provided as an option for 24/7 output monitoring.

MAINTENANCE

The GPS iMOD system has been designed for minimum maintenance. Below are the steps to ensure a long trouble-free life:

1. On an annual basis, turn off power and use isopropyl alcohol and a nylon (wire free) brush to gently clean the needles.

2. Use a soft cloth with isopropyl alcohol and wipe any debris off the GPS iMOD outer bar and spaces between needle housings.

3. Note, in smoking applications, the GPS iMOD will require more frequent cleaning based on the filter efficiency prior to the GPS iMOD system.

TROUBLESHOOTING

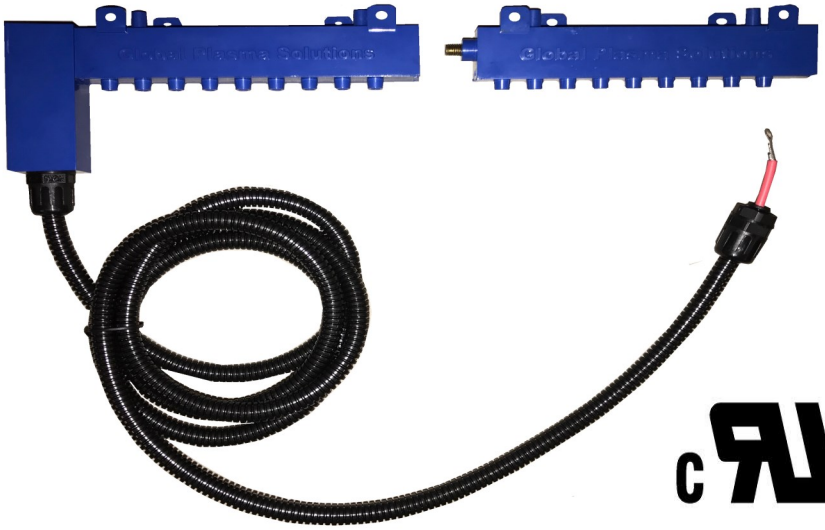
1. Power supply "Power On" light not illuminated when the power switch is in the "On" position.
1A. Check that all safeties are closed and there is primary power applied to the power supply. If light will still not illuminate, remove power and energize after five minutes. The GPS iMOD system uses an internal auto-reset circuit breaker. Either a voltage surge or high temperature/load condition can trip the circuit breaker. If the "Power On" light is off and the "Plasma On" light is "On", the "Power On" light may have burned out. Contact your local Representative or the GPS factory to have your power supply repaired or replaced.

2. No Ionization Output.
2A. Confirm the power supply is operating properly as shown in step 1A above. Confirm the HV cables are inserted and secured properly. Confirm the needles are clean and free of debris.

iMOD®

MODULAR IONIZATION SYSTEM

PRODUCT DATA SHEET



Product Description: The GPS-iMOD is a modular ionization system that allows any size ionization bar to be field erected up to any length required. The all composite and carbon fiber construction allows the product to be mounted in any environment, regardless of corrosive chemicals in the air.

Standard Features Include: Universal Voltage Selector Switch, Illuminated On/Off Switch, Plasma On Indication Light, Six HV Output Ports, Alarm Contacts, magnets for ease of installation, and Auxiliary Terminals for connection of an optional GPS-iDetect-P ion sensor.

Benefits: Modular to fit any system in 6" increments, corrosion proof construction, multiple voltage inputs, provides balanced positive and negative ionization output.

Applications: Schools, Airports, Natatoriums, Offices, Casinos, Arenas, Restaurants & Gyms.

Specifications:

Voltage / Temp / Hum:	24/120/208-240VAC -40F to 200F 0-100%
Amps:	0.5A/0.12A/0.065A
Power:	15 Watts
Frequency:	50/60HZ
Output Voltage:	5.0kV RMS—iMOD bar voltage is less due to safety coupling
Output Frequency:	50/60 HZ
Output Current:	3 mA
Power Entry:	6' UL Listed, Plenum Rated, Line Cord with 3 Prong Plug
Electrical Listings:	UL, cUL
Power Unit Dimensions:	9.0"L x 3.25"W x 4.75"H
Weight:	5.0 lbs
Bar Section Dimensions:	6.0"L* x 0.75"W x 1.6"H
Weight:	0.75 lb per bar

***Length = 6.0" X Bar Qty + 1.20"**

Global Plasma Solutions
10 Mall Terrace, Building C
Savannah, GA 31406

GPS®

Phone: 912-356-0115
Fax: 877-270-5353
Web: www.globalplasmasolutions.com