

# CLEANER AIR *safer air*

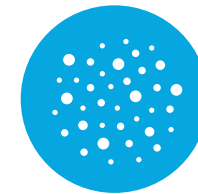
GPS offers revolutionary technology that fights pathogens and provides safer, cleaner air. Our patented needlepoint bipolar ionization (NPBI®) technology can be found in more than **250,000 installations** worldwide.



## *A Proven Process to Clean the Air*

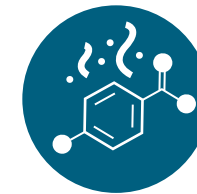
The air around us is filled with particles like dust, dander, pollen, smoke, odors and even pathogens including mold, viruses and bacteria. Our patented NPBI technology cleans the air by introducing ions into the space via the airflow in your ventilation system.

Our technology delivers indoor air that's free of ozone and other harmful by-products. Through NPBI, GPS products improve the air by reducing airborne particulates, odors and pathogens.



### TARGETS PARTICLES

When these ions disperse throughout a space, such as an office or a schoolroom, they combine with particles suspended in the air. This creates a snowball effect in which particles of opposite polarities begin to cluster together, which makes them easier to capture in filtration systems.



### TACKLES ODORS

GPS' NPBI technology breaks down chemical, pet, cooking and other odors into basic harmless compounds, leaving indoor air smelling fresh and substantially reducing odor-causing VOCs.



### REDUCES PATHOGENS

During the NPBI process, contact with ions disrupts pathogens' surface proteins, rendering them inactive and unable to replicate.



### SAVES ENERGY

By keeping indoor air cleaner, NPBI reduces the amount of air required from outside to keep things fresh—saving you initial ventilation equipment costs and up to 30% on energy consumption.

### UP TO THE TASK

GPS' NPBI technology works to safely clean the air inside buildings of many sizes and types.

### TOP-FLIGHT TECHNOLOGY

GPS' technology has been designed and approved to operate in commercial and private aircraft. Aviation applications require passing the stringent RTCA DO-160 test proving the technology does not generate EMF, line noise or interfere with the avionics in any way. GPS' technology is used in many healthcare applications and will not cause interference with imaging equipment.

### COMMON APPLICATIONS

- Healthcare
- Schools & Universities
- Manufacturing
- Office Buildings
- Airports
- Food Service
- Fitness
- Arenas & Stadiums
- Hospitality
- Worship

### WHAT IS OZONE?

Ozone, or O<sub>3</sub>, in the upper atmosphere is formed naturally and protects Earth from harmful UV radiation. Ground-level ozone is primarily man-made and is harmful to breathe. Certain types of ionization products produce ozone, but GPS' NPBI technology does not.

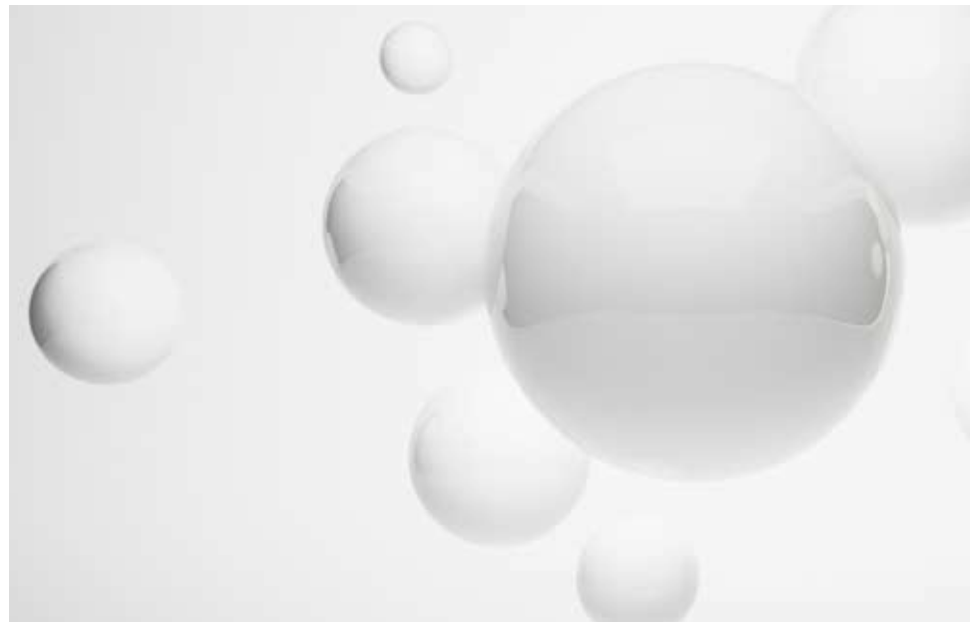


# The POWER of IONS

GPS' NPBI technology cleans indoor air.

This patented technology produces a high concentration of positive and negative ions, delivering them to the space via the ventilation system. Within the air stream, ions attach to particles, where they combine, become larger and are more easily filtered from the air. When ions come in contact with pathogens, they disrupt the pathogens' surface proteins, rendering them inactive.

Studies have proven the ability of GPS technology to reduce infectivity of certain viruses by **90% or more\***



## WHAT IS AN ION?

An ion is a molecule or atom that is positively or negatively charged, meaning it must either gain or relinquish electrons in order to become neutral.

## CLEANER AIR, NATURALLY

Naturally occurring ions are everywhere in the outdoors, and they are constantly working to clean the air. Ions are created with energy from rushing water, crashing waves and even sunlight. GPS' NPBI technology generates ions without producing ozone or other harmful by-products, so you can bring outdoor freshness to the indoors.

\*Global Plasma Solutions (GPS) uses multiple data points to formulate performance validation statements. GPS technology is used in a wide range of applications across diverse environmental conditions. Since locations will vary, clients should evaluate their individual application and environmental conditions when making an assessment regarding the technology's potential benefits.

The use of this technology is not intended to take the place of reasonable precautions to prevent the transmission of pathogens. It is important to comply with all applicable public health laws and guidelines issued by federal, state and local governments and health authorities as well as official guidance published by the Centers for Disease Control and Prevention (CDC) (<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>), including but not limited to social distancing, hand hygiene, cough etiquette and the use of face masks.

## The GPS advantage

Proven technology to fight pathogens.

### SENSITIVITY TESTING

A petri dish containing a pathogen is placed underneath a laboratory hood, then monitored to assess the pathogen's reactivity to NPBI over time. This controlled environment allows for comparison across different types of pathogens. Sensitivity testing is not a measure of pathogen inactivation in the air.

### SIMULATION TESTING

Simulation testing measures in-air inactivation of pathogens. Counts of an airborne pathogen are taken before and after aerosolizing that pathogen into a sealed, unoccupied laboratory environmental room installed with NPBI technology.

### SPECIALTY TESTING

Unoccupied laboratory test environments are designed to evaluate NPBI performance in conditions unique to particular industries or customers, and may include special circumstances such as higher than average ion concentrations. Review individual test results for details. The 2020 SARS-CoV-2 specialty testing conducted by Innovative Bioanalysis is not a measure of pathogen inactivation in the air.

Pathogen	Time in Chamber	Rate of Reduction	Test Agency
Norovirus†	30 minutes	<b>93.5%</b>	ATS Labs
Human Coronavirus 229E*	60 minutes	<b>99.0%</b>	Analytical Lab Group
Legionella	30 minutes	<b>99.7%</b>	EMSL
Clostridium Difficile	30 minutes	<b>88.9%</b>	EMSL

Pathogen	Time in Chamber	Rate of Reduction	Test Agency
Tuberculosis	60 minutes	<b>69.1%</b>	EMSL
MRSA	30 minutes	<b>96.2%</b>	EMSL
Staphylococcus	30 minutes	<b>96.2%</b>	EMSL
E. coli	15 minutes	<b>99.7%</b>	EMSL

Pathogen	Time in Chamber	Rate of Reduction	Test Agency
SARS-CoV-2**	30 minutes	<b>99.8%</b> Inactivation rate measured on aluminum and other surfaces	Innovative Bioanalysis

Please note that testing the reduction rate of SARS-CoV-2 with GPS' NPBI product is an evolving process and additional testing is anticipated to be conducted in the future. While this is not a surface disinfectant, this testing demonstrates a decrease in active virus on surfaces through particle aggregation.

† Surrogate for Norovirus, actual strain tested was Feline Calicivirus, ATCC VR-782, Strain F-9

\*Human Coronavirus 229 is not SARS-CoV-2

\*\*Not an FDA Cleared Air Purification System

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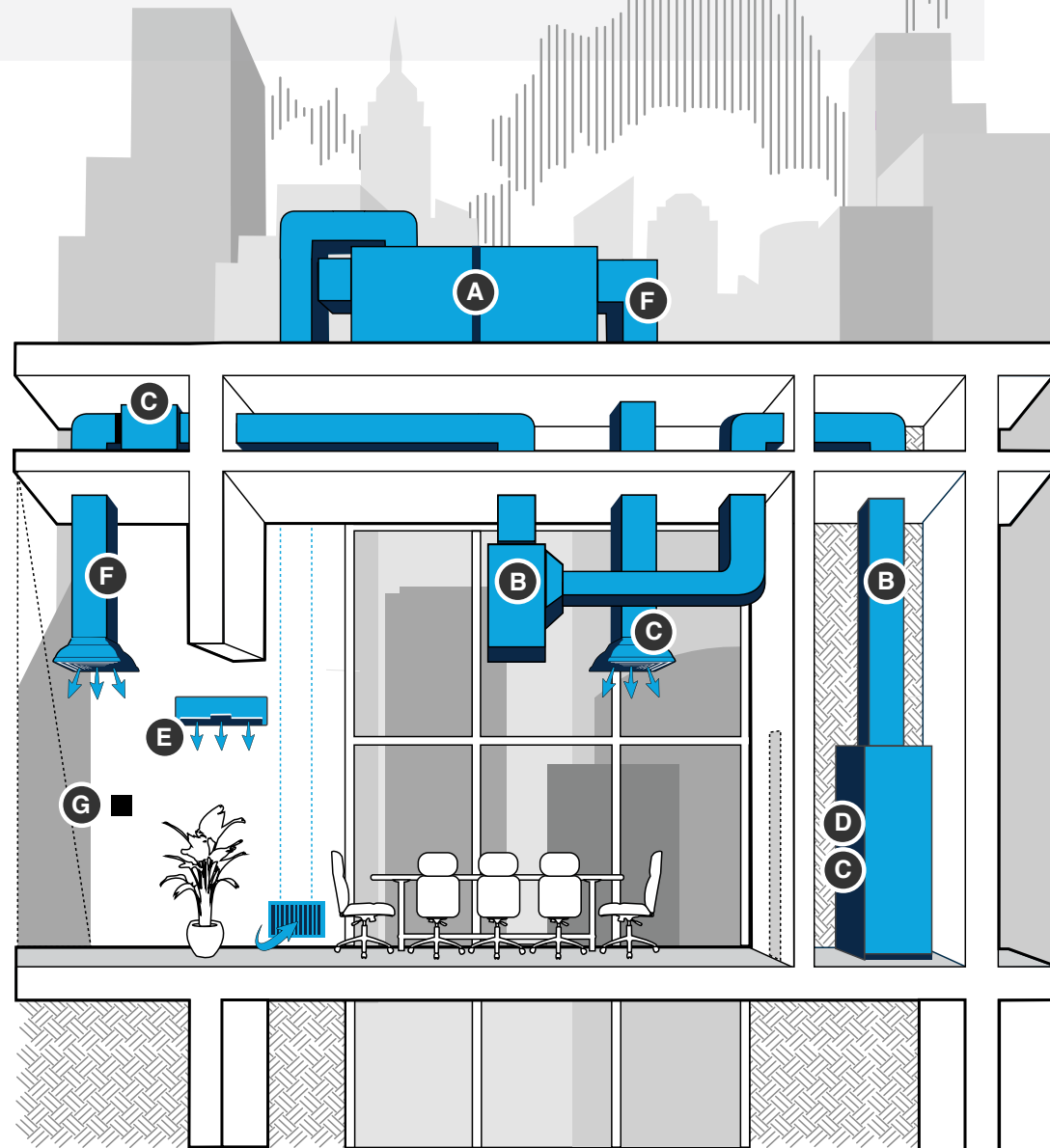
## GPS NEEDLEPOINT BIPOLAR IONIZATION VS. OTHERS

	GPS NPBI	Other BPI	Corona Discharge	HEPA Filters	Carbon Filters	Ultraviolet (UV)	UV-PCO
No Harmful By-Products	●			●	●		
Reduces Airborne Particles	●	●	●	●			
Tackles VOCs	●	●	●		●		●
Reduces Pathogens	●	●	●	●	●	●	●
Reduces Energy Cost	●	●	●				
Treats In-Room Air	●	●	●				
No Replacement Parts	●						
No Maintenance	●						
Simple To Install	●						
Low Total Cost	●	●					

# Put GPS TECHNOLOGY to work

## INSTALLATION EXAMPLES

From air handling units to fan-powered boxes, GPS offers products for a variety of system types.



- A. iMOD
- B. DM48
- C. FC24
- D. FC48
- E. iRIB 18/36
- F. iMEASURE-D
- G. iMEASURE

## STEP 1

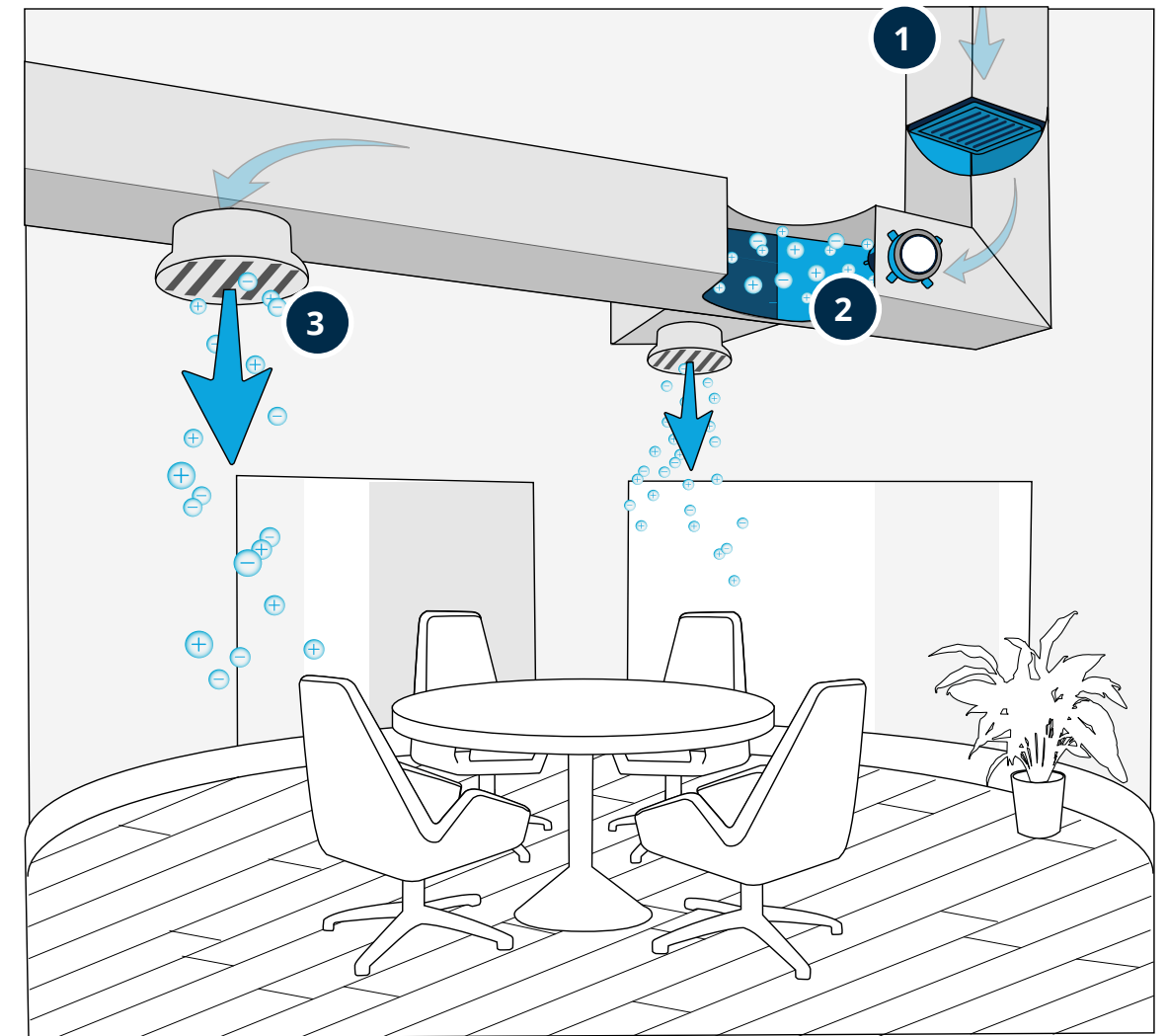
Conditioned air flows into the distribution duct system

## STEP 2

The air is ionized by the GPS device

## STEP 3

Positive and negative ions are delivered into your environment



## ION DELIVERY

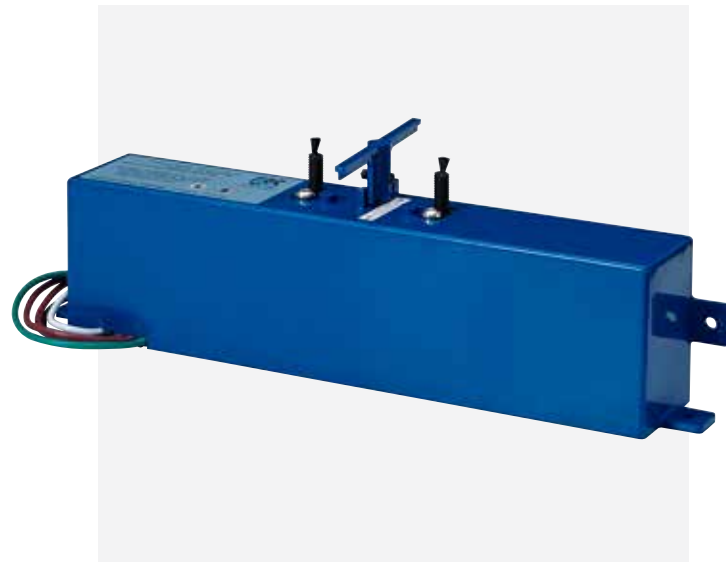
In-room ion density is dependent on a variety of factors, including proximity of the ionizing equipment to the occupied space, air flow rates and path of the ductwork within the building.

GPS' diverse portfolio includes an **industry-leading assortment** of products that serve the widest variety of system types.

## GPS-FC48-AC™

An automatic self-cleaning, lightweight NPBI system that handles up to 4,800 CFM or 12 tons. Designed for multiple mounting options including fan inlet, interior duct walls or floors.

- > 400 Million + and – Ions/cc
- Universal Voltage Input (24–240 VAC)
- Programmable Auto-Cleaning Cycle
- Carbon Fiber Brush Emitters
- Integral (BAS) Alarm Contacts



<b>SYSTEM TYPE</b>	Air Handling Units Ducted Split Systems Packaged Rooftop Systems Fan Coil Units VAV/Fan Powered Box
<b>COOLING CAPACITY</b>	up to 4,800cfm Airflow Capacity / up to 12 Tons
<b>INSTALL LOCATION</b>	Fan Inlet Supply Air Stream Zone Diffuser

## GPS-FC24-AC™

An automatic self-cleaning, lightweight NPBI system that handles up to 2,400 CFM or 6 tons. Designed for multiple mounting options including fan inlet, interior duct walls or floors.

- > 300 Million + and – Ions/cc
- Universal Voltage Input (24–240 VAC)
- Programmable Auto-Cleaning Cycle
- Carbon Fiber Brush Emitters
- Integral (BAS) Alarm Contacts



<b>SYSTEM TYPE</b>	Air Handling Units Ducted Split Systems Packaged Rooftop Systems Ductless Mini Splits VRF Cassettes Fan Coil Units VAV/Fan Powered Box
<b>COOLING CAPACITY</b>	up to 2,400cfm Airflow Capacity / up to 6 Tons
<b>INSTALL LOCATION</b>	Fan Inlet Supply Air Stream Zone Diffuser

## GPS-DM48-AC™

An automatic self-cleaning, lightweight NPBI system that handles up to 4,800 CFM or 12 tons. Design optimized for mounting into interior duct walls or floors.

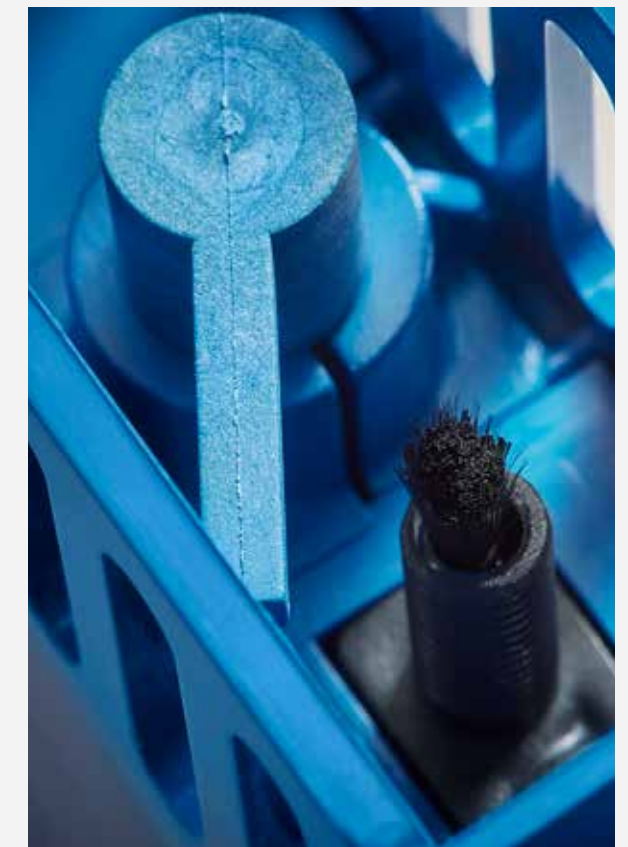
- > 400 Million + and – Ions/cc
- Universal Voltage Input (24–240 VAC)
- Programmable Auto-Cleaning Cycle
- Carbon Fiber Brush Emitters
- Integral (BAS) Alarm Contacts
- 3/4 Quick-Turn Duct Adapter



<b>SYSTEM TYPE</b>	Air Handling Units Ducted Split Systems Packaged Rooftop Systems VAV/Fan Powered Box
<b>COOLING CAPACITY</b>	up to 4,800cfm Airflow Capacity / up to 12 Tons
<b>INSTALL LOCATION</b>	Duct Supply Air Stream

## Auto-cleaning technology

Auto-cleaning technology from GPS ensures sustained ion output over time. Ion output can decrease without this feature, in addition to accumulation of humidity and other material buildup. Competitor products and brushes must be manually cleaned, and while a simple process, this rarely occurs. GPS technology's auto-cleaning feature performs regular wipes of emitter brushes, which prevents buildup. The resulting benefit is optimal lifetime performance.



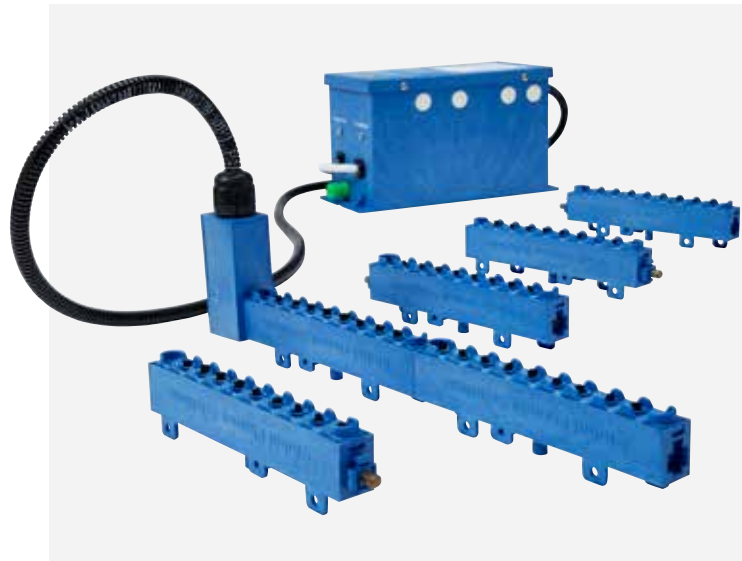
## GPS-iMOD®

The GPS-iMOD is a modular NPBI system that is field assembled to any length up to 240 inches in 6-inch increments. The fiberglass composite and carbon fiber GPS iMOD can be mounted in various environments.

- 840 Million + and – ions/cc per 6" section
- Universal Voltage Selector Switch
- Six High Voltage Output Ports
- Integral (BAS) Alarm Contacts
- Plasma on Indication Light
- UL 2998 Ozone Free

## GPS-NEMA4-OE™

The GPS-NEMA4-OE is a NEMA 4X-rated fiberglass enclosure designed to house one GPS-iMOD power supply. The panel adds a superior finished look to any project while providing the required protection against foreign substances, such as water and dust, when power supplies are mounted in non-NEMA 1 rated environment.



*Pairs with GPS-iMOD® to house the power supply and create a superior finished look.*

<b>SYSTEM TYPE</b>	Air Handling Units Packaged Rooftop Systems
<b>COOLING CAPACITY</b>	4,800+cfm Airflow Capacity / 15+ Tons
<b>INSTALL LOCATION</b>	Duct Supply Air Stream Between Evaporator Coil & Filter

## GPS-iRIB® 18/36

The GPS-iRIB is available in 18" and 36" lengths. This mechanism is engineered to deliver the highest level of ionization with the least amount of energy in the most compact size.

- >35 Million + and – ions/cc per foot
- Fold-To-Length Circuit
- Integral (BAS) Alarm Contacts
- Velcro® for Easy Installation
- Voltage Input 110VAC to 240VAC
- UL 2998 Ozone Free



<b>SYSTEM TYPE</b>	Ductless Mini-Splits Ducted Modules PTACs
<b>COOLING CAPACITY</b>	up to 3,200cfm Airflow Capacity / up to 8 Tons
<b>INSTALL LOCATION</b>	Duct Supply Air Stream

## GPS-FC-3-BAS™

The GPS-FC3-BAS unit is designed to be mounted inside of fan coils, heat pumps, PTACs, ductless mini splits and air handlers up to 3,200 CFM or 8 tons. Its compact size and simple mounting requirement allows it to be mounted almost anywhere in just a few minutes.

- Carbon Fiber Brush Emitters
- >350 Million + and – Ions/cc
- Integral (BAS) Alarm Contacts
- Powered by 24 Volts AC
- UL 2998 Ozone Free



<b>SYSTEM TYPE</b>	Air Handling Units Ducted Split Systems VAV/Fan Powered Box
<b>COOLING CAPACITY</b>	up to 3,200cfm Airflow Capacity / up to 8 Tons
<b>INSTALL LOCATION</b>	Fan Inlet Supply Air Stream

## GPS-iMEASURE®

The GPS-iMEASURE is the first commercially available ion detector that can be permanently mounted in the space to measure ion levels in real time and report back to a BAS.

- Monitor Ionization Levels Remotely
- Auto Calibration/Auto Zero
- 0 – 1 Million Negative Ions/cc
- Output Voltage 0-10v DC
- Compatible with any GPS Device



## GPS-iMEASURE-D™

The GPS-iMEASURE-D ion detector is permanently mounted in the duct downstream of any GPS ionization device. It measures ion levels in real time and reports back to a BAS. It includes three sensitivity levels: 20,000/200,000/2,000,000 ions/cc/sec that can be set based on the application and in-duct location.

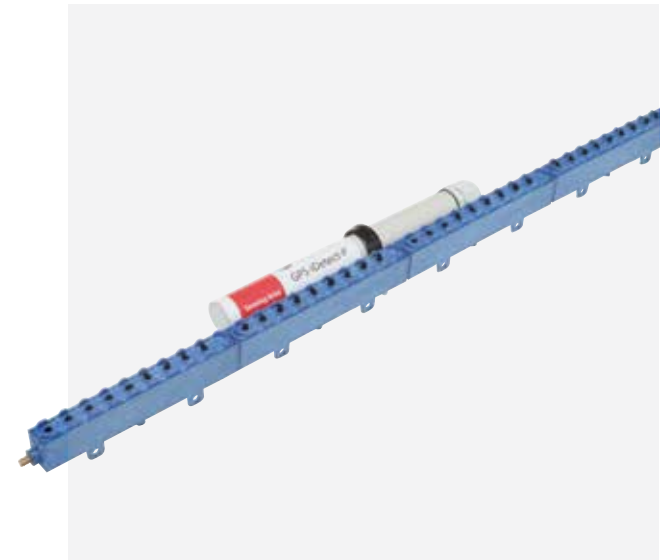
- Monitor In-Duct Ionization Levels
- 20,000 – 2 Million Ions/cc
- Input Voltage 12 to 24V AC or DC
- Output Voltage 0-10v DC
- Compatible with any GPS Device



## GPS-iDETECT-P™

The GPS-iDETECT-P is a plenum-mounted ionization detector that confirms the output from the GPS-iMOD. The GPS-iDETECT-P provides the ability to monitor ionization status in a plenum to confirm that the ionization equipment is working properly.

- Universal Voltage Input
- 1,000 – 200 Millions Ions/cc (+ or -)
- 0-100% Humidity
- Compatible with iMOD



*Paired with GPS-iMOD, the GPS-iDETECT-P provides the real-time ionization status in a plenum to confirm that ionization equipment is working properly.*

## Stay Informed

GPS measurement and verification products provide peace of mind and confidence that the equipment is performing as it was designed. Select GPS products integrate with Building Automation Systems (BAS).



**Pro Mechanical Services**

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GPS products ensure system performance through **continuous measurement.**