

Instruction Manual

SLIM ION BAR ASG-PG Series



Read this instruction manual before using the product in order to achieve maximum performance.
Keep this instruction manual within your reach after reading so that it can be used at any time.

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Before installation, be sure to read carefully at least

1.7 Cautions

2. Installation & Connection parts

1.1 Features

Welcome to become a customer of DIT!

ASG-PG Series is a slim bar ionizer for 250mm and 300mm lengths that could not be supported by ASG-P series by maintaining the performance of ASG-P.

ASG-PG Series is,

- More suitable for medium short distance static elimination
(For long distance static elimination, we recommend our ASG-A Series.)
- Safe from fire by using own piezo ceramic for HVPS(High Voltage Power Supply)
- Able to keep stable Ion Balance due to its patented **Auto-Balancing function**

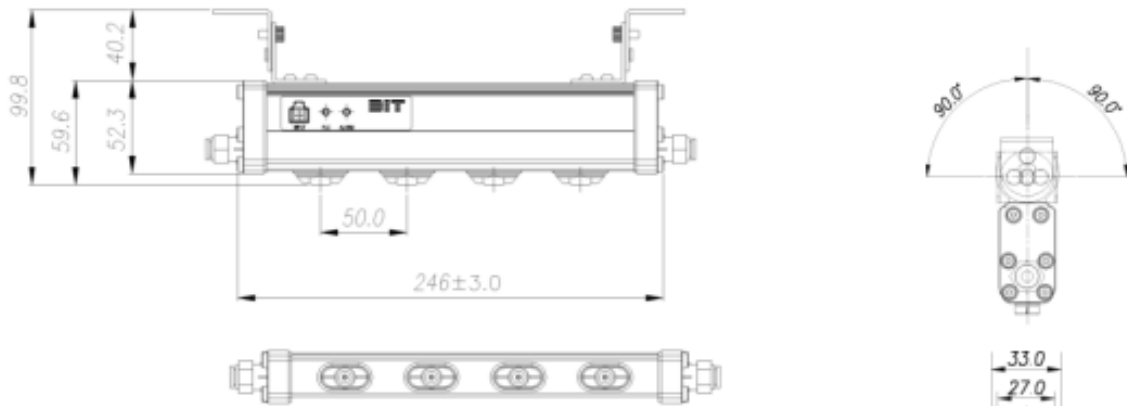
1.2 Specifications

Series name	ASG - PG	Air	Type	CDA, N2
Length	250mm, 300mm		Pressure	0 ~ 0.5Mpa (Usually under 0.3Mpa)
Ion generating method	Corona discharge		Flow	2.0L/min(±10%) per 1 emitter (under 0.1Mpa)
Voltage application method	High-Frequency AC		Air tube diameter	6 pi (outside)
Input Voltage	DC24V±10%	Material		Main body: ABS / Emitter pin: Tungsten
Input Current	MAX. 400mA	Display		PLC LED(Green/Red), Alarm LED(Green/Red)
Output Voltage	±4.7kV(±5%)	Controllable factors		Ion on/off with PLC on/off
Output Frequency	29kHz	Remote control range		No remote control function
Ion Balance	Under average ±30V	Ambient temperature		0℃ ~ +50℃(32~113°F)
Weight(g)	Max : 330g	Relative humidity		35~85%RH(No dewing)
Power consumption	MAX. 9.6W			
Ozone generation	Under 0.05ppm			

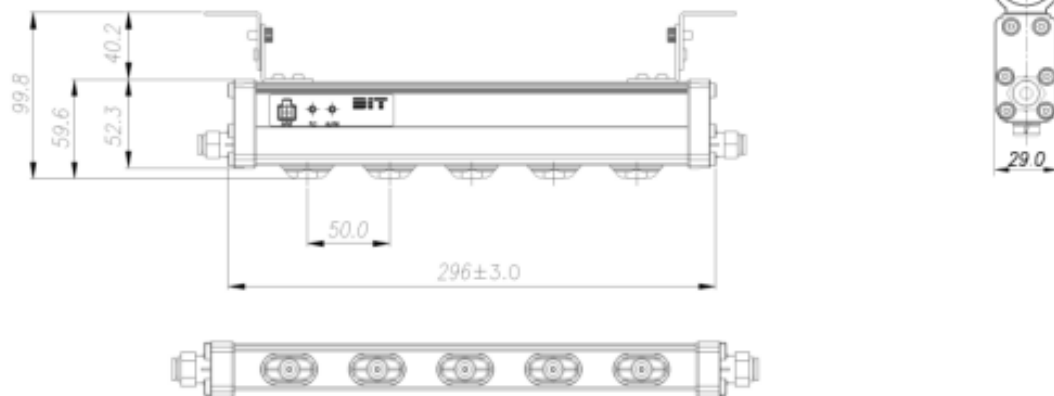
※ Specification can be changed without notice for performance improvement

1. 3 Dimensions

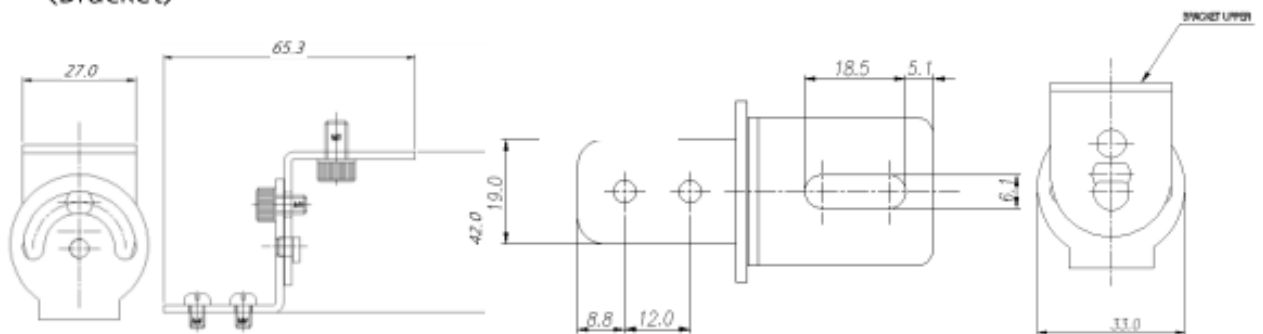
<ASG - P025G>



<ASG - P030G>



<Bracket>



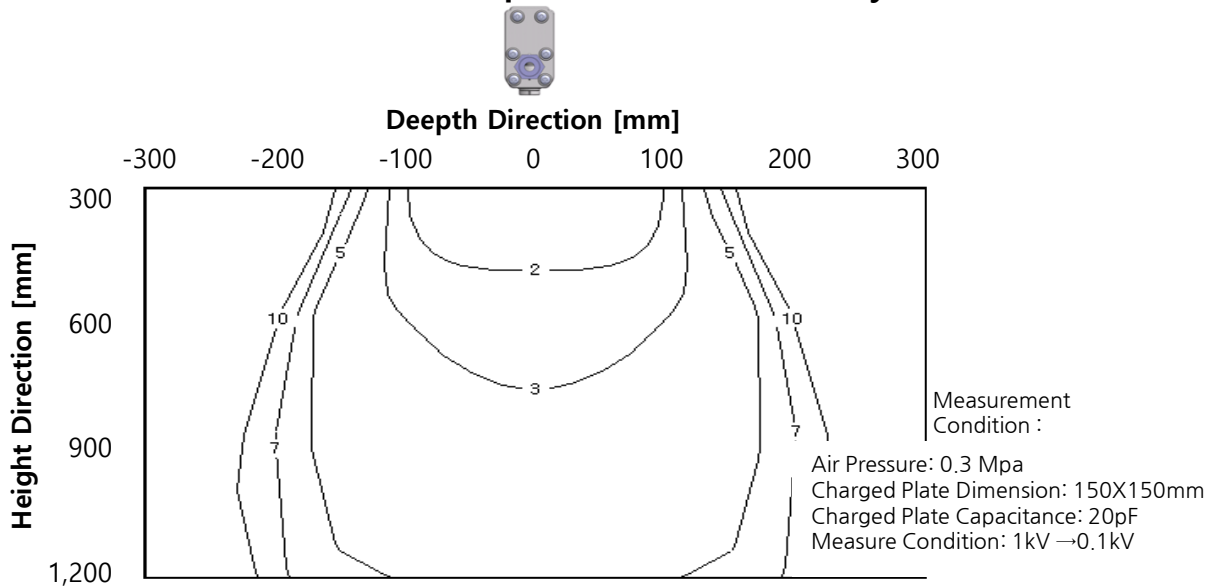
Model	Number of emitters(EA)	Length(mm)	Model	Number of emitters(EA)	Length(mm)
ASG-P025G	4	246	ASG-P030G	5	296

1.4 Performance

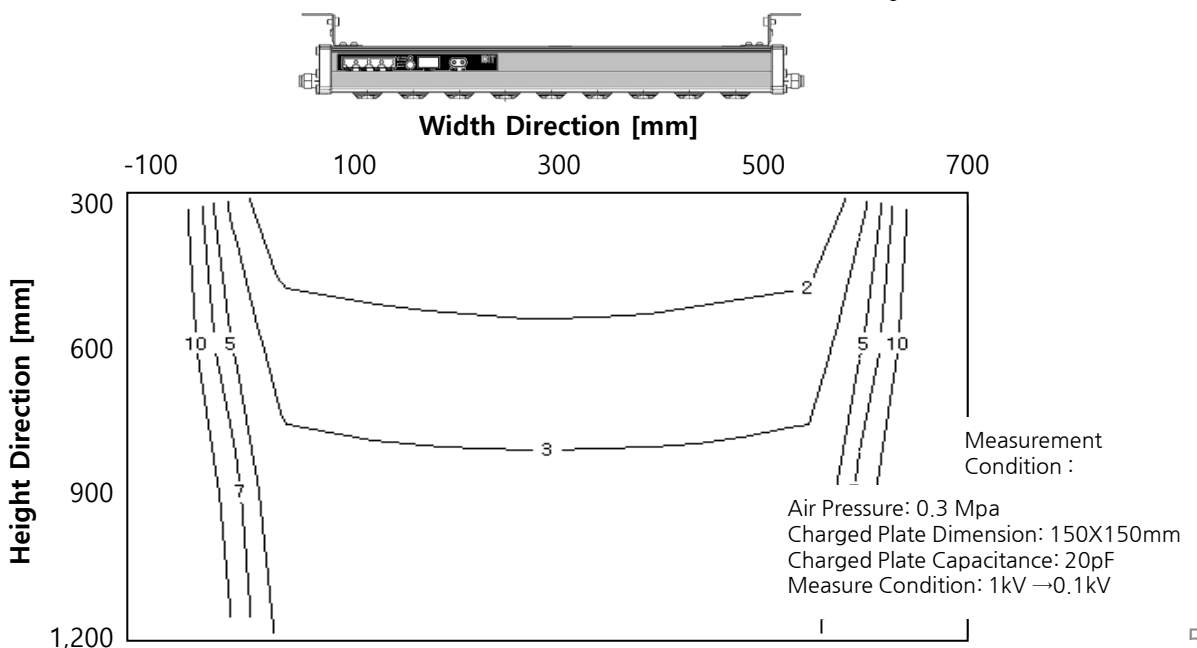
※ Discharge time: the time necessary for static elimination

- Relation between discharge time and distance(Distance: mm, discharge Time: sec) shows discharge time according to the distance measured in product's side and front perspective.

Relation Between Depth Direction and Decay Time



Relation Between Width Direction and Decay Time



1.5 Package Contents

Package

- ① Main body(controller & power supply embedded)



- ② Support brackets and screws



※ Contact to the seller for customizing

- ③ Power cable (4PIN)



※ Length: 3M

Options

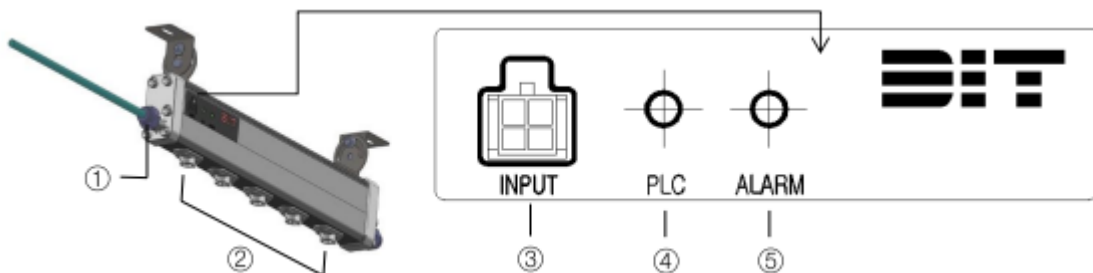
- ① Ion emitter Kit
For replacement
(10ea/set)



- ② extra brackets



1.6 Part Names



- ① Air feeding entrance
- ② Ion emitters
- ③ 4Pin Power/PLC connector
- ④ PLC Alarm (Green / Red)
- ⑤ Ion Alarm LED (Green/Red)

1.7 Cautions

Please be well informed of the cautions below before installation.

▪Safety

- . To avoid the risk of electric shock or product malfunction, keep fingers and metallic objects away from the unit during operation.
- . Make sure that there is adequate ventilation when using the Unit in an enclosed space because static elimination using Corona Discharge method generally generate a small quantity of ozone.
- . To avoid the risk of electric shock, be sure to turn the power off during the maintenance.
- . To avoid the risk of injury, do not touch the emitter pin directly with your hands.
- . Disconnect from power supply and remove all the air in the unit before installing or moving.
- . To avoid explosion, do not install the Unit in a place surrounded with volatile material or a lot of particles.

▪Power supply

- . Use a DC power supply at voltage of 24V±10%
- . Be sure to use a stabilized DC power supply.
- . Be sure to use ionizer after grounding the power and equipment.
- . When using SMPS or adaptor, be sure to connect a separate branch line from the (-)side of the power cable and should be connected to an earthed part of the machine

▪Installation

- . Don't use any other parts not enclosed in the package.
- . Do not install in regions affected by strong electric magnetic fields.
- . Keep appropriate distance between two units to avoid mutual interference (refer 8page)
- . Be careful not to apply excessive force on air feeding entrance or side cover, especially when installing the Unit vertically.

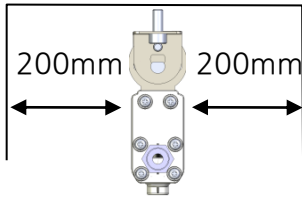
▪Air

- . Remove impurities like water or oil from the air in compressor by using filters or air dryers before use.
- . Install the unit after making sure that there is no foreign material in the air passage.

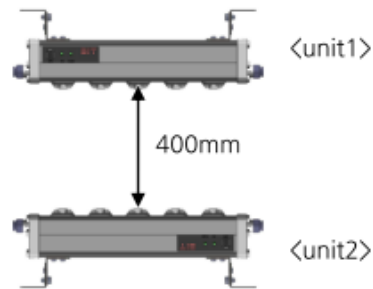
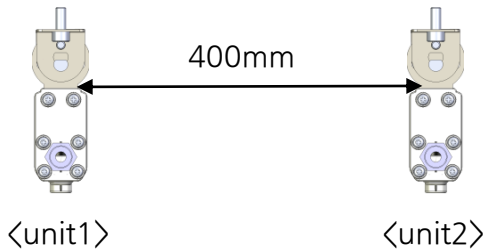
Non-observance of the above and **Warning!!** in this manual may lead to injury or product malfunction. DIT doesn't take any responsibility for the damage if the Unit is used in a manner that differs from the specification in this manual or if the Unit is modified by yourself

2.1 Installation Location

- Provide enough space between the static elimination bar and surrounding walls as shown in the figures below.



- If two SGA-A units are used, refer to the following illustration and separate the static elimination bars properly.



- Keep at least 20cm distance between the Unit and the static charged object.

2.2 Purging and moving into CR(Clean Room)

- Purging

ASG-PG series is packaged after purging in our clean room to remove dust. However, if needed, execute purging process according to the below.

- 1) Install the unit.
- 2) Feed the Unit CDA or N2 gas at about pressure of 3Bar(0.3Mpa)
- 3) After purging for a period of time, check the particle level with a counter to make sure that it is suitable for Clean Class





- Moving the Unit into clean room

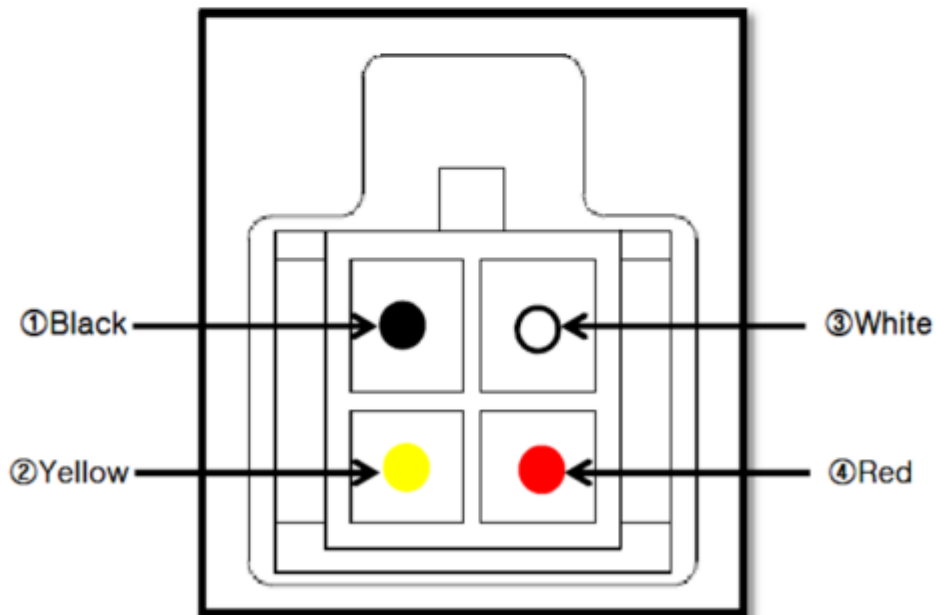
We recommend doing the below process before moving the Unit into a clean room.

- 1) Remove the wrapping paper outside the clean room.
- 2) Clean the outside of the plastic wrap with cleansing solution
- 3) Moving the Unit into clean room using a pass box
- 4) Remove the plastic wrap before installation

※ If you have your own process for Clean Class, you can apply it.

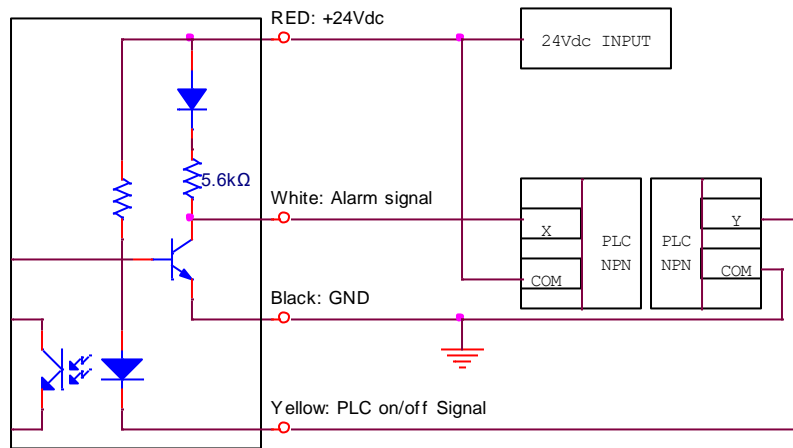
2.3 Wiring diagram

구분	PIN No.	Color	Connection & Usage
Power cable	①	Black 	Power Supply Ground, Field Ground
	②	Yellow 	PLC On/Off
	③	White 	Ion Alarm Signal
	④	Red 	+24 DC Power Supply



2.3 Wiring Diagram

〈ASG-PG Series PLC Circuit Diagram〉



▪Connection without PLC

- 1) Connect the black and yellow cables to field ground.
- 2) Connect the red to DC 24V.

▪Connection when using PLC

- 1) Connect the black cable to field ground.
- 2) Connect the red cable to DC 24V.
- 3) Connect the white cable to NPN PLC input (X contact).
- 4) Connect the yellow cable to NPN PLC output (Y contact).
- 5) ASG-PG operates when yellow cable is connected to ground.
- 6) The white line is alarm output.
- 7) Ion on and normal state : transistor turns on and white line is connected to ground
- 8) Ion off and error state : transistor off and white line is connected to 24Vdc through
- 9) 5.6kΩ pull up resistor

▪Connection when using an adaptor

- 1) Connect the black line to the adaptor (-)
Make sure that either one of the lines should be connected to an earthed part of the machine.
- 2) Connect the red lines to the adaptor (+)
- 3) If you are using PLC, connect corresponding lines to PLC; otherwise cut off the rest of the lines not in use.

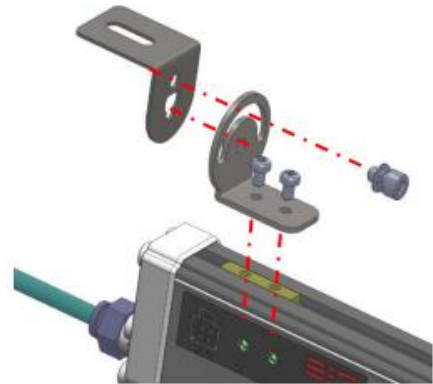
2.4 Installing main body

■ Installation order

- ① Assemble the brackets firmly into a main body

Warning!!

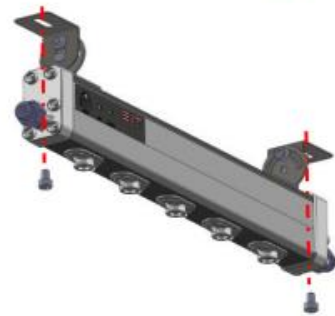
If you fix the Unit without using the brackets in package, be careful the weight not to be applied on the side cover, which can result in air leakage



- ② Fix the main body with M5 screws

Warning!!

Before fixing the main body, make sure that you complied all the precautions (p7) and location guide(p8)



- ③ You can control main body angle up to 180 degree.



2.4 Installing main body

④ Connect power cable

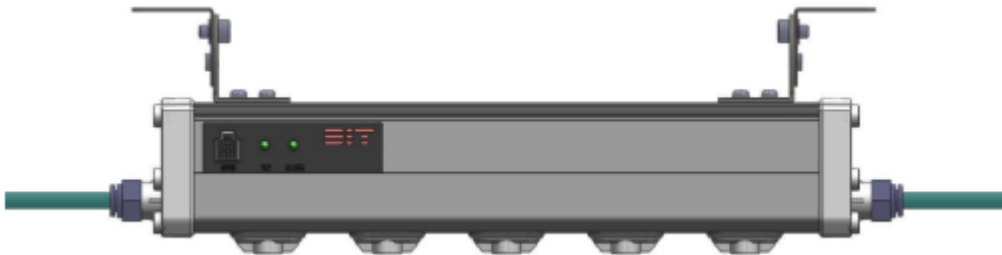
Warning!!

For guaranteed performance, make sure that GND line of the power cable should be earthed.



⑤ Feed the air

6 mm diameter tube is used in ASG-PG. Connect tube by pushing it through air fitting until you hear 'click' sound.



Warning!!

- Make sure that air pressure should be lower than 0.5 Mpa.
- Air pressure lower than 0.3 Mpa is recommended.
- Flow rate and cleanness of supplied air is crucial for performance and cleaning cycle of the device.

2. 5 Check list after installation

Recheck the below list before operating the Unit.

- (1) Make sure that power and air supply are properly connected. Check if proper amount of air flow and power are supplied to the unit. Excessive or deficient amount of air and power may cause damages to the device.
- (2) Check operation environment that may cause malfunction, failure or shorting the life of the device, such as strong magnetic or heat sources.
- (3) Check if there are any metallic objects in the vicinity of the device, (≤ 5 cm), or within the operating distance. Metallic objects nearby hinder ion generation; metallic objects within the operating distance block ion moving toward targets for static control.
- (4) Check if emitter is installed correctly. Operation without the emitter may seriously damage the device or cause malfunction of the device.
- (5) Check if the device is loaded with excessive weight or subject to shock. Excessive load or shock to the device may cause serious damage such as malfunction or air leakage from broken/bent air duct.

Our ASG-PG Series are ionization devices using Corona Discharge method. Ion emission and ion balance are subject to operation environment, please make yourself familiar to the device, instruction, and cautions before using the device.

3. 1 Necessity of maintenance

- Necessity of emitter pin cleaning and emitter replacement

In general, when static controllers are continuously in operation for a long period, Dust and dirt are accumulated around the emitter pin, called “fuzzy-ball”.

Depending on operating environment, ‘fuzzy-ball’ grows to block normal operation and results in deterioration in performance of static controller.

An emitter pin (inside a emitter) is a sharp, pin-shaped object, made from tungsten. ASG-PG series produces ions using corona discharge method. Thus, during an operation, high voltage is applied on its emitter pin, which rounds the sharp pin away as the time goes on. A rounded emitter pin cannot produce ion as well as the sharp one.

For these reasons, emitter and emitter pin should be cleaned and replaced periodically.

If not cleaned, and replaced properly, worn-out emitter pin with fuzzy-balls, may deteriorate the quality and performance of your production. Make sure that emitter(and emitter pin) should be cleaned and replaced on a regular basis.

- Recommended cleaning cycle under the circumstance below : **Every 3 months**

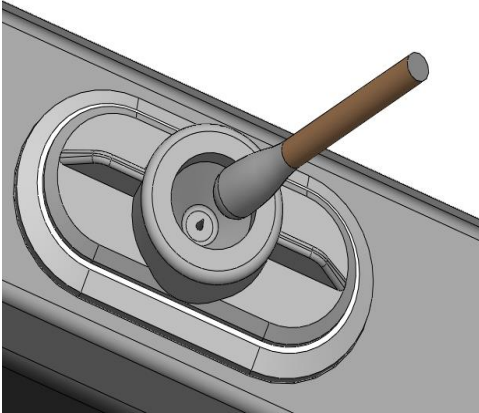
- Temperature : 22 °C[a higher temperature may lengthen the cycle]
- Humidity : 50%[a higher humidity may lengthen the cycle]
- Clean Class : 10,000 Class [a lower Class index may lengthen the cycle]
- Quality of Supplied Air : CDA[purer air may lengthen the cycle]

- ※ The conditions listed above are for general environment, Actual result may slightly vary depending on the user’s working environment.

Six months cleaning cycle is based on test conditions used by DIT. Please compare DIT’s conditions and your working environment and adjust it and set up cleaning cycle accordingly.

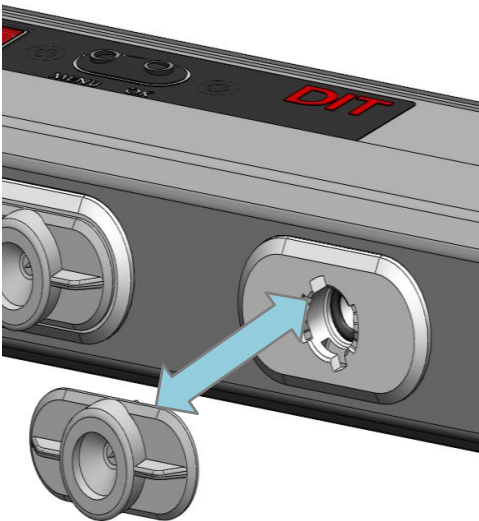
3. 2 How to clean and replace emitters

▪ How to clean an emitter



- ① Prepare soft brush or cotton swab with alcohol. (No acetone)
- ② Power off the device and stop the air input.
- ③ Wipe out the white 'Fuzzy ball' on the end of the emitter pin softly enough not to damage or scratch it.
- ④ Power on the device and feed the air
- ⑤ After 5 ~ 10 minutes, check the device performance with and measuring instrument.

▪ How to replace an emitter



- ① Prepare a new emitter for replacement.
- ② Power off the device and stop the air input.
- ③ Rotate the emitter assembled in the unit counterclockwise
- ④ Pull the emitter to separate it from the unit
- ⑤ Insert a new emitter and rotate it clockwise to fix it firmly.
- ⑥ Power on the device and feed the air
- ⑦ After 5 ~ 10 minutes, check the device performance with and measuring instrument.

Trouble Shooting

Problem	Inspection
Not power on	1) Check that the power cable is connected correctly.(refer p.9)
Alarm LED is blinking in red	1) Check yellow cable is connected to ground. Even if you don't use PLC, yellow cable should be connected to ground. 2) If that doesn't work, contact to the manufacturer
Ion balance is swing between + and -	1) Some swing is natural because of Auto Balancing function 2) Clean the emitter pin or replace the emitter
Smell of burning during operation	1) Turn off the power immediately. 2) Contact to the manufacturer

※ If you cannot solve the problem with the direction above or have other problems not described above, please call the manufacturer or leave a message on our website.

Warranty

We, Dong Il Technology Ltd. Manufactured this product under a strict quality control system and warrants it for 1 year of period from the shipment date.

However, we don't have any responsibility for

- 1) Any damage if the product is used in a way different from that is explained in this manual or remade by users arbitrarily.
- 2) Any damage led by improper usage. We recommend the installation circumstances in this manual, but that is just a recommendation and users are responsible for understanding the product's specification and judgment of suitability of usage.
- 3) Direct or indirect damage led by the product malfunction.