PTU Quality Life

begins with your Air Indoor

PhotoClean PTU destroy up to 99.9% of the contaminants in HVAC system?

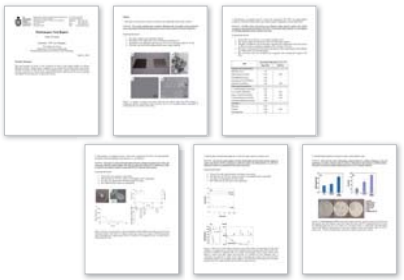
PhotoClean PTU are sized according to the application. Taking into account the duct size, air velocity, temperature, humidity, dosage request and the pollutant level. PhotoClean PTU can size the application in order to achieve 99.9% destruction at one time. If you have an application that requires our help in specifying a PhotoClean solution, just give us a call, or calculate DIY with our "PhotoClean – PTU Sizing Table" or "PhotoClean – PTU Fast Sizing Guide"

Specification:	
Brand	innocleanTM – Australia
Country of Origin	Assembly in China
Series	PhotoClean
Model:	PTU102E, PTU102F, PTU102G
UV Lamp length	E: 300mm / F: 435mm / G: 550mm E: 12 inch / F: 17 inch / G: 22 inch
Lmap Power	102E: 15W / 102F: 22W / 102G: 27W
Max. Services Area (Sizing by area - Reference only)	E : 600 ft.2 / F: 800 ft.2 / G: 1000 ft.2 (Max. depends on air pollutant level and nos. of occupants etc…)
Max. Catering Air Flow Rate (E, F, G)	(CFM) E. 800 / F: 1200 / G: 1600 (m3/s) E: 0.37 / F: 0.56 / G: 0.74
Electricity input	220V / 50 - 60 Hz
Power	E : 25W / F: 34W / G: 42W
Consumption	
Current Amp (A)	E : 0.11 / F: 0.17 / G: 0.22
On / Off Switch	Oprional with air flow sensor
Power Indication	YES (Indication Lamp)
UV Lamp	Quantz UVC 253.7nm
UV Lamp Intensity @1m (W/cm)	E : 43 / F: 72 / G: 85
Lamp Guarantee	8,000 hrs (1 Year)
Lamp Performance (Reference)	Every 10,000 hrs. drop arround 20-30% Efficiency
Lamp Life expected (24hrs/day)	Over 25,000 hours 3 Years (Normally)
UV Ballast	High output Electronic Type
PCO Chamber	Metal with TiO2 Coating (Washable)
Control Box	CRS Powder Coated
PCO Material	Titanium Dioxide (TiO2)
Chamber Life	Over 10 Years
PCO Chamber (Washable)	YES (Washed by clean water)
Al. Foil Sheet	Excluded (by contractor)
Pressure Sensor	Yes (Disconnect ex-factory)
+/- Ions Generation	5 x 10*6 / cc
Operate Humidity	< 99% RH
Operate Temp	10 – 50 (Degree C)
Power Cord	1.5m without electrical plug
Weight (KG)	E : 1.1 / F: 1.5 / G: 1.7

Specification:	
PCO Chamber Dimension inside air stream	E : 295 x Ø53 (mm) F : 430 x Ø53 (mm) G : 540 x Ø53 (mm)
Control Box (Size) L x W x H	E : 120 x 85 x 85 mm F : 170 x 150 x 50 mm G : 170 x 150 x 50 mm
Ozone Generation	Comply with ASHRAE < 0.05ppm
Fuse Protect	YES
Al. UV Reflection Foil	Excluded (by contractor)
Safety Standard	CE

Testing:

- Tested by HK University of Science Technology – Efficiency Test
- Tested by HK University of Science Technology – Coating Durability Test
- Tested by LAWN – Registered IAQ CIB in HK – Efficiency Test



Sole Distributor (China, Hong Kong and Macau):

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E-mail: info@hkapc.org

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"PhotoClean" Photocatalytic Treatment Unit

Theory by: Photo Catalytic Oxidation (PCO) Feature:

- Unit mounted inside air duct, fan coil return and AHU.
- Highly effective in removing VOC's, odor, dust particles bacteria and virus from passing air and inside air duct & AHU.
- Employs the most advanced nano-technology to coat TiO2 on patented metallic surface (304 Stainless Steel) and UV lamp for outstanding (PCO) performance.
- No affect the pressure drop in existing HVAC system
- Free of maintenance. Washable design. Grade 304 Stainless Housing and PCO Probe, excellent durability.
- Long services life time and low operation cost
- UL and CE certified
- Lifetime Plasma Ions Generator Head (Never replace)
- Standard UVC Lamp. Options with UVA Lamp
- Tested by Hong Kong University of Science Technology
- Tested by LAWN – Registered IAQ CIB in Hong Kong

Induct, Fan Coil Return and AHU Type

"PhotoClean" is the newest and most scientifically advanced system in both electronics and ability to destroy bacteria and indoor air pollution. The purification science is created from Nano-Technology PCO which creates greater efficacy in killing and reducing bacteria, viruses, VOC's and other harmful airborne contaminants

How does the "PhotoClean" PTU Work?

We are continually exposed to a growing number of health threatening pollutants that can be categorized into three groups: biological contaminants, toxic gases, and particulates. To deal with these hazards, PhotoClean™ units combine powerful purification methods:

- Ultraviolet Germicidal Irradiation (UVGI) occurs when ambient air flows through our killing chamber and passes by our special ultraviolet lamp where it is exposed to intense levels of ultraviolet light that aides in the destruction of organic unfriendly particles.
- Powerful light wavelengths are generated that energize the gaseous contents of the passing air producing a purifying plasma that destroys bacteria, viruses, fungi, VOC's, and other organics as well as neutralizing unpleasant odors.
- Particulates such as dust and smoke are bombarded by photoelectrons to remove them from the air.

Photo Catalytic Oxidation

- (PCO) is an advanced process by which volatile organic compounds (VOC's), bacteria, mold and fungus are destroyed by incorporating photon and ultraviolet (UV) energy activating a catalyst (TiO2) creating photo catalytic oxidation. PCO is produced by the air being exposed to photon light and passing through a catalyst comprised of specific nano sized mineral compounds. After the air's exposure to the lamp's energy in the PCO chamber, three specific free radicals are released which destroy the bio-aerosols (bacteria, molds, and fungus). During the process, hydrogen peroxide, hydroxyl radicals, and hydroxides are released back into the area where they attach themselves to specific organisms and kill them.

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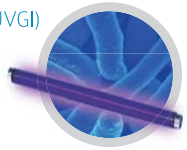
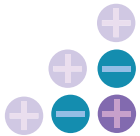
Theory by:

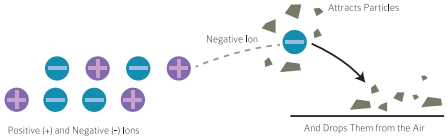
Ultraviolet Germicidal Irradiation (UVGI)

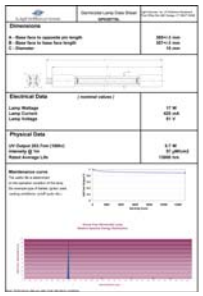


Plasma Ion Generation



Plasma Ion +/- IONS





PhotoClean PTU Ionization: Plasma Ion Generation

Breathe air as clean & fresh as Australia Mountains.

PhotoClean Ionizer's Secret - Small Ions

Ions exist in nature in various sizes. Small ions only last between 30 and 300 seconds, but they are very active. Small ion levels range from 900 to 1,100 negative ions and 1,000 to 1,200 positive ions per cubic centimeter (ions/cm3) in an ideal "fresh air" environment, like at the top of a mountain. At sea level we typically experience 500 negative and 600 positive ions. In cities and inside buildings the ion levels drop by 80% to 95% and are sometimes barely detectable in small spaces. As the ion count decreases, so does the air quality. By increasing the quantity of charged oxygen ions to "fresh air" levels, oxygen molecules can once again become active and air quality improved. The PhotoClean technology reproduces mountain elevation ion levels indoors. This is the basis of the technology.

Much like sunlight does in the atmosphere, Plasma Air technology produces a natural bio-climate rich in active oxygen molecules, otherwise known as ions. The Plasma Air system creates a measurable and controllable quantity of positive and negative oxygen ions. The negative ions contain an extra electron while the positive ions are missing an electron resulting in an unstable condition. These unstable ions provide the following benefits:

Benefit & Functions

Particle Reduction

Airborne particles are charged by the ions through ionic bonding. These charged particles stick together, becoming heavier and then falls to the floor. These larger particles are also returned through the air conditioning system or vacuum cleaner where they are captured by the filter. E.g. dust particles, cigarette smoke, mold spore & Allergen

Odor Neutralization

Odorous gases and aerosols oxidize on contact with active oxygen molecules. Odors, especially of an organic origin, are quickly eliminated.

Sterilization

As they divide in the split zone, bacteria, virus and mold spores bond with active oxygen molecules and are oxidized and destroyed. The bacteria and spores can no longer multiply. Additionally, particles are the vehicles that transmit bacteria cells from person to person. As the ions cause particles to fall to the floor, the result is less bacteria in the breathing zone.

VOC Control

Volatile Organic Compounds (VOCs) are emitted as gases where there is carpeting, building materials, furniture, office equipment, cleaning agents, paints, glues, solvents or pesticides. The ions trade electrons with these VOCs breaking down their molecular structures into less harmful ones e.g. H2O & CO2.

Health Benefits

Human and animal lungs absorb oxygen more efficiently from clean ionized air, enhancing general health and well-being. Alertness and concentration is improved.

PhotoClean - PTU Fast Sizing Guide

When using Plasma Air ionization equipment on any project, it is important to provide the proper amount of ion ization. In commercial or industrial projects, pollutants such as airborne particles from smoke, dust, spores; VOCs from cleaning supplies, glues, paints, or other chemicals; odors from locker rooms, cooking, nursing homes, industrial processes; and even health related concerns from mold, bacteria, and viruses all contribute to poor indoor air quality. Selecting the proper ionization equipment is important for achieving all the benefits from the ionization system. The information below will guide you through the process.

Pollutant Load Factor:

Factor	Pollutant Level Classification
Level A	Office, Classroom, Home and Gymnasium area – Low pollutant level
Level B	Day care Ctre, Nursing Ctre., Locker room, Health Club and Restaurant – Medium Pollutant Level
Level C	Hospital, Factory (light), Beauty Salons – Heavy Pollutant Level
Level D	Smoking area, New decoration area, Factory (Heavy), Garbage Room – Very Heavy Pollutant Level
Level E	Heavy Pollution or Odor e.g. Industrial Facility and Waste Water Treatment Plant.
Remarks:	**The above table are refer to normal environment conditions**

Fan Coil / AHU / PAU – Sizing Guide by Air Flow:

Fan Coil	Level A	Level B	Level C	Level D	Level E
Air Flow	Model * nos.	Model * nos.	Model * nos.	Model * nos.	Model * nos.
400 cfm / 0.19m3/s	102E	102E	102F	102F*2 / 102G	102F*2 / 102G
600 cfm / 0.28m3/s	102E	102E	102F	102F*2	102G*2
800 cfm / 0.38m3/s	102E	102E*2 / 102F	102F*2 / 102G	102F*2	102G*2
1,000 cfm / 0.47m3/s	102E*2	102E*2 / 102F	102F*2 / 102G	102G*2	102G*3
1,200 cfm / 0.56m3/s	102E*2 / 102F	102F*2 / 102G	102G*2	102G*3	102E*4

Surface Area – Sizing Guide by (ft.2)

Area	Level A	Level B	Level C	Level D	Level E
Sq. ft.	Model * nos.	Model * nos.	Model * nos.	Model * nos.	Model * nos.
100 - 300	102E	102E	102E*2 / 102F	102F*2 / 102G	102G*2
300 - 500	102E	102E*2 / 102F	102F*2 / 102G	102G*2	102G*3
500 - 800	102E*2 / 102F	102F*2 / 102G	102G*2	102G*3	102G*4

Remarks:
*2 means 2 nos. of PTU should be used / *3 means 3 nos. should be used
The above table air flow per area are designed base on max. cfm per ft.2 = 1.5 – 2.0.
We should select a powerful model or increase the nos, of PTU for cfm per ft.2 = < 1.5