



Room Ionization

Room Ionization

- Neutralizes charges throughout a room or facility
- Lightweight powered grid systems are installed overhead
- Best solution to neutralize ElectroStatic Attraction (ESA)
- Best solution for contamination control
- Customize your system for optimal performance

Electrostatic Attraction and Contamination Control

- Charged particles cling to products causing visual defects and contamination problems
- Air ionization enhances a filter's effectiveness, reducing airborne particle levels

Offset Voltage Balance and Discharge Times

- Offset voltage per S20.20 for Room Ionizers is ± 150 volts or less
- Discharge Time is "User Defined"

Room Ionization

Room ionization is used when limiting electrostatic charges which occur over a wide production area is desired. Room ionization typically has powered grid systems installed overhead to provide ions throughout a room. Since ions are heavier than air, they will move to worksurfaces and the floor. Manufacturers concerned about contaminants or having a product that includes powders are often concerned with ElectroStatic Attraction (ESA) and Room Ionization frequently offers the best solution.



Methods of power distribution to the ionizers as well as other installation requirements need to be considered. After installation, these large systems will require periodic maintenance to assure the desired performance. In contrast to other ionizer applications, room ionization often involves a custom engineered system rather than an off-the-shelf product. It is important to have a supplier with an experienced design team that takes into account factors such as ceiling height and airflow in the room.

"Ionization is being used to reduce ESD damage, for contamination control, or to deal with other problems caused by static charge." (ESD Handbook ESD TR20.20 section 5.3.6.1.4 Other Static Charge Problems)





Electrostatic Attraction

Ionizers neutralize charges and can be particularly effective in ElectroStatic Discharge (ESD) control, removing ElectroStatic charges from insulators which cannot be grounded or isolated conductors that are not grounded.

In addition, Ionizers deal effectively with ElectroStatic Attraction where charged particles cling to products causing contamination problems.

“Static charge control has become a necessity in many production environments. By controlling static charge it is possible to:

1. Prevent damage done directly to products by electrostatic discharge (ESD) or electrical overstress (EOS).
2. Prevent the malfunction of solid-state based equipment caused by ESD.
3. Prevent product handling problems caused by the presence static charge and allow higher process speeds.
4. Protect against product contamination due to electrostatic attraction and bonding of particulate to critical product surfaces.
5. Reduce airborne particle levels in some production environments.
6. Reduce the risk of injury to personnel caused by static discharge.”
(ESD Handbook ESD TR20.20 section 5.3.6.1.1 Charge Control)

Contamination Control

“Another application of air ionization is to improve contamination control. Balanced air ionization can enhance the ability of the air filtration system to remove particles from the clean room environment. Ionization neutralizes charges on critical surfaces and reduces the attraction of particles to these surfaces. Particles have a greater tendency to remain in the laminar airflow and then be removed by the air filtration system.” (ESD Handbook ESD TR20.20 section 5.3.6.1.3 Contamination Control)

Offset Voltage Balance and Discharge Times

Per Table 3 of ANSI/ESD S20.20-2007 the required limit for offset voltage (balance) for Room Ionizers is ± 150 volts. The maximum Discharge Times’ is important but is “User Defined”.

“Product damage thresholds may determine the allowable offset voltage, or balance, of the ionizer. Offset voltage measured with the charged plate monitor may be part of the performance specification.” (ESD Handbook ESD TR20.20 section 5.3.6.5.3.3 Discharge Time and Product Sensitivity)

