



Benchtop Ionization

Why Ionization?

- Insulators and isolated conductors cannot be grounded
- Ionization is a component of a complete static control program
- Circuit board materials are examples of necessary insulators
- Combat field induced discharge even when ESDS is properly grounded

Benchtop Ionizers

- AC ionizer emitter pins switch rapidly between positive and negative high voltage
- AC ionizer requires sufficient fan air flow
- Steady State DC ionizer uses pairs of emitters for either negative and positive high voltage
- DC ionizer can operate at lower airflow
- Can be a concern for operator comfort or when handling small component parts



50663 Zero Volt Ionizer

Why Ionization?

Grounding is very effective in removing electrostatic charges; all conductors including people should be grounded in an ESD protected area. Grounding everything would be great but if insulators are present or conductors are isolated, by definition, grounding cannot occur. "The primary method of static charge control is direct connection to ground for conductors, static dissipative materials, and personnel. A complete static control program must also deal with isolated conductors that cannot be grounded, insulating materials (e.g., most common plastics), and moving personnel who cannot use wrist or heel straps or ESD control flooring and footwear.

Air ionization is not a replacement for grounding methods. It is one component of a complete static control program. Ionizers are used when it is not possible to properly ground everything and as backup to other static control methods." (ESD Handbook TR20.20 section 5.3.6.1)

Per ANSI/ESD S20.20-2007 "Necessary non-conductors in the environment cannot lose their electrostatic charge by attachment to ground. Ionization systems provide neutralization of charges on these necessary non-conductive items (circuit board materials and some device packages are examples of necessary non-conductors)."





The only ESD control tool available for essential insulators or isolated conductors is ionization.

The presence of charged insulators can be maddening as a workstation can have a properly ground ESD mat, but not remove charges if the grounding occurs in the presence of a charge. Instead the ESD sensitive item will receive a charge and experience a "Field Induced Discharge". "If an ESDS device is placed in that electrostatic field, a voltage may be induced on the device. If the device is then momentarily grounded, a transfer of charge from the device occurs as a CDM (Charged Device Model) event. If the device is removed from the region of the electrostatic field and grounded again, a second CDM event will occur." (ESD Handbook ESD TR20.20 section 2.7.5 Field Induced Discharges)



50661 Zero Volt Mini Ionizer

Benchtop Ionizers

EMIT offers a number of Benchtop Ionizers.

The 50600 Benchtop Blower Ionizer utilizes an Auto-Balanced AC Ionizing System. An AC ionizer emitter pin creates ions by switching rapidly between positive and negative high voltage. Ion recombination is a concern so that sufficient fan air flow is required and handling ESDS very close to the ionizer is not recommended.

For the Chargebuster Jr., Benchtop Zero Volt Ionizer, and the Mini Zero Volt Ionizers, EMIT uses Steady State D.C. systems. The pairs of emitter pins produce either negative or positive ions. Ion recombination occurs at a lower rate and so Steady D.C. systems can operate at a lower airflow which can be a concern for operator comfort or when handling small component parts.

