

Portable Ionizing Air Gun Operation and Maintenance



Figure 1. Portable Ionizing Air Gun, EMIT Item [50627](#)

Description

The EMIT Portable Ionizing Air Gun is a ready-to-use unit for use in applications and areas where electrostatic charge can create manufacturing or handling problems. This unit quickly and effectively neutralizes bulk static charges and aids in controlling contamination by dislodging dust and debris attracted by static electricity.

The Portable Ionizing Air Gun meets or exceeds the recommended technical requirements of ANSI/ESD S20.20 tested in accordance with ANSI/ESD S3.1.

The Portable Ionizing Air Gun is designed for point-of-use applications. Ionizers are useful in preventing electrostatic charge generation, ElectroStatic Discharge, and ElectroStatic Attraction. ANSI/ESD S20.20 Paragraph 6.2.3.1 Protected Areas Requirement states: "Ionization or other charge mitigating techniques shall be used at the

workstation to neutralize electrostatic fields on all process essential insulators if the electrostatic field is considered a threat." Ionization is used to neutralize charges on process necessary insulators and isolated semiconductors. Some examples of process necessary insulators are: the PC board itself, plastic test stands, plastic housing where a PCB may be mounted, as well as computer monitor screens and regular cleaning wipes. Examples of floating or isolated conductors are: loaded PCB mounted in a stand where the pins are not contacting the dissipative workstation.

NOTE: The unit is not recommended for continuous use.

THEORY OF OPERATION

The emitter is located inside of the nozzle. This emitter produces large amounts of positive and negative ions, which mix with the air supply and create a highly effective neutralizing field. Any material within this field will be neutralized rapidly. The ionizing air flow removes contamination by dislodging dust and debris which is attracted to a material's surface by static charges. Once static charges are neutralized, dust particles and other forms of contamination are freed and carried away by the air stream. EMIT ionizers meet the ANSI/ESD S20.20 minimum recommended technical requirement range of less than ± 50 V voltage offset tested in accordance with ANSI EOS/ESD S3.1. The EMIT Portable Ionizing Air Gun provides ± 30 volt balance.

CAUTION

- The Portable Ionizing Air Gun is not water resistant, therefore, keep it away from water and mist as they will cause short circuit and insulation failures
- Keep the air gun away from vibration, corrosive/flammable gas and dust as they can be the cause of fire, short circuits, rust, etc
- Do not operate the Portable Ionizing Air Gun near the face
- Keep the Portable Ionizing Air Gun away from children
- DO NOT use the Portable Ionizing Air Gun for purposes other than its designed purpose
- DO NOT damage the nozzle or connectors
- DO NOT disassemble the unit

Packaging

Item [50627](#)

- 1 Portable Ionizing Air Gun
- 1 Coiled Air Tube
- 1 Quick Disconnect Adapter
- 1 Extension Brush
- 4 AA Rechargeable Batteries
- 1 Power Supply
- 1 Certificate of Calibration

Item [50628](#)

- 1 Portable Ionizing Air Gun
- 1 Coiled Air Tube
- 1 Quick Disconnect Adapter
- 1 Extension Brush
- 4 AA Alkaline Batteries
- 1 Certificate of Calibration

NOTE: The power supply packaged with item [50627](#) does not recharge the included rechargeable batteries. The power supply may be used only to power the Portable Ionizing Air Gun.

Installation

- I. Open the Battery Container Lid by using a coin to turn the plastic lock.
- II. Insert 4 AA Batteries then close and lock the lid.
- III. Insert the 4 mm diameter air tube to the Air Inlet and check to see if the connection is secure.
- IV. Connect one end of the Quick Disconnect Adapter to the air supply/source and the other end to the air tube from the Ionizing Air Gun.

NOTE: Ensure that the air supply/source is set within the 10 – 65 PSI range.



Figure 1. Portable Ionizing Air Gun Features and Components

Operation

AIR INJECTION TEST

Pulling the trigger lightly, approximately halfway, will release air from the emitter nozzle. The Active Power LED located on the backside of the unit should not illuminate.

If the air does not come out vigorously with a hissing sound, check the following:

- Make sure that the air tube is attached firmly to the gun
- Make sure the air supply connections are secure

ION INJECTION TEST

When the trigger is completely pulled, the gun will release an ionized air flow. This is indicated by the illuminated green LED located on the backside of the unit. If the LED does not illuminate, check the following:

- Battery installation
- Battery power

USING THE PORTABLE IONIZING AIR GUN

To blow ionized air, pull the trigger all the way in. Ensure that the green LED is illuminated.

To blow air, pull the trigger halfway. Ensure that the green LED is not illuminated.

Specifications

Air Pressure Range:	10 - 65 PSI
Rated Voltage for Power Supply:	Output 6 VDC, 2.5 W
Maximum Relative Humidity:	90% non-condensing
Operating Temperature Range:	0°C - 50°C
Storage Temperature Range:	-10°C - 50°C
Storage Humidity Range:	20°C - 90°C

AIR REQUIREMENTS

Always supply the Portable Ionizing Air Gun with filtered, dry compressed shop air. Using nitrogen is not recommended with this product. If the air is not dry, damage to the equipment may result and the warranty will be voided. Dirty air can introduce moisture and oil, contaminating the units' emitter assembly along with the materials to be cleaned or neutralized.

Filters must therefore be used at all times upstream of the air nozzle. A water trap-type pre-filter should be used in conjunction with an oil coalescing-type filter. Also drain all moisture traps regularly to prevent moisture in the line. Several drains per day may be necessary, especially in areas of high humidity.

The Portable Ionizing Air Gun may be operated over a range of 10 - 65 PSI.

The specific pressure needed will depend upon the application. Pressures exceeding 65 PSI are not recommended since these higher pressures are detrimental to effective ion production, and may damage the unit.

CAUTION: These air nozzles are not explosion proof. Do not use in environments where volatile materials are present.

Limited Warranty

EMIT expressly warrants that for a period of five (5) years from the date of purchase an EMIT Ion Gun will be free of defects in material (parts) and workmanship (labor). Within the warranty period, a credit for purchase of a replacement EMIT Ion Gun, or, at EMIT's option, the Ion Gun will be repaired or replaced free of charge. If product credit is issued, the amount will be calculated by multiplying the unused portion of the expected five year life times the original unit purchase price. Call our Customer Service Department at 909-664-9980 (Chino, CA) for a Return Material Authorization (RMA) and proper shipping instructions and address. Please include a copy of your original packing slip, invoice, or other proof of date of purchase. Any unit under warranty should be shipped prepaid to the EMIT factory. Warranty replacements will take approximately two weeks.

If your unit is out of warranty, call our Customer Service Department at 909-664-9980 (Chino, CA) for a Return Material Authorization (RMA) and proper shipping instructions and address. EMIT will quote repair charges necessary to bring your unit up to factory standards.

Warranty Exclusions

THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

Limit of Liability

In no event will EMIT or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.