Viper Ion Gun
Installation, Operation and Maintenance

Made in the
United States of America

Figure 1. Desco 19595 Viper Ion Gun

Description

The Desco Viper Ion Gun is a point-of-use ionizer used for neutralizing electrostatic charges to eliminate attraction, visual imperfections and contamination issues by dislodging charged dust and debris. It uses compressed clean dry air (CDA), or a special nozzle (19596) may be purchased separately for use with nitrogen. Fast discharge times with ±15 volt offset voltage meet the required limits of ANSI/ESD S20.20 and ESD TR53. A high frequency piezo AC power supply is located Inside of hand piece to maintain consistent ionization performance with longer hose lengths (standard 6' hose included) and eliminate the need for a remote console. The light weight of the Viper Ion Gun (less than ½ pound; 200 grams) allows for comfortable extended use by operators. The Viper Ion Gun is designed with slotted tips to meet the OSHA requirement for pressure relief. A green LED on the back of the hand piece illuminates when the trigger is depressed to indicate that the gun is outputting ionized air. A red LED indicates abnormal output. Normal power consumption is approximately 2.5 Watts.

The Viper Ion Gun and its accessories are available in the following item numbers:

Item	Description
19595	Viper Ion Gun
19596	Nitrogen Nozzle Tip
19597	Emitter Replacement Kit
19598	Clean Dry Air Nozzle Tip

"There is sometimes a need to provide static control in a small defined area or location. This may be done to provide static control within production equipment, in mini-environments, or to facilitate particle removal from part of a product. Ionizers used for this purpose may be blow-off guns or nozzles that work with a supply of compressed air or nitrogen. They may use either nuclear, soft x-ray or any of the previously described types of corona ionization technology. It will be important to choose a method of ionization and cleanliness of the gas supply that is appropriate to the work area." (ESD handbook ESD TR20.20 section 5.3.6.5.2.4 Point-Of-Use Ionization)

"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). Assessment of the ESD hazard created by electrostatic charges on the necessary nonconductors in the work place is required to ensure that appropriate actions are implemented, commensurate with risk to ESDS [ESD sensitive] items". (ANSI/ESD S20.20 Foreword)

Packaging

1 Viper Ion Gun
1 Power Adapter, 24VDC, with interchangeable plugs (North America, UK/Asia, Europe)
1 Air Tube, 6' Length
1 Certificate of Calibration

Features and Components

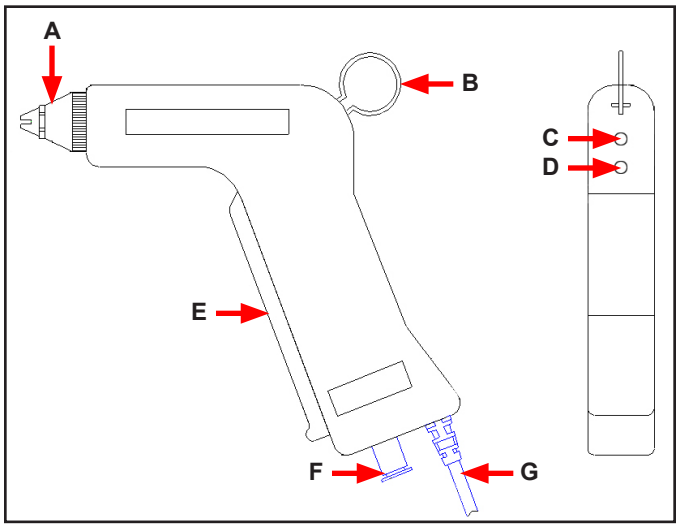

Figure 2. Viper Ion Gun Meter features and components

A. Output Air Nozzle: Outputs ionized air when the trigger is depressed. Use the Desco 19596 Nitrogen Nozzle Tip when using nitrogen as the air supply.

B. Hanging Hook: Use to hang the hand piece when not in use. The hook may be rotated 90 degrees.

C. Power LED: Illuminates green when the trigger is depressed and ionized air blows out the nozzle.

D. Alarm LED: The red LED will illuminate during the following conditions:

- the high frequency transformer breaks down and no longer outputs high voltage
- the high voltage line shorts to ground
- the emitter becomes dirty or contaminated with moisture or oil

E. Trigger: Depress to output ionized air.

F. Air Input Port: Use the one-touch joint to secure a 6 mm air tube to the ion gun.

G. Power Cable: Connect the power cable to the power adapter to supply power to the ion gun.

Installation

1. Connect the Viper Ion Gun's power cable to the power adapter.
2. Connect the power adapter to an appropriate power outlet.
3. Connect the green wire to equipment ground. The face plate screw of a grounded AC wall outlet may provide a convenient connection point.
4. Insert an air tube **requires 6 mm outside diameter** into the ion gun's air input port.
5. Connect the other end of the air tube to a source of clean dry air or nitrogen.

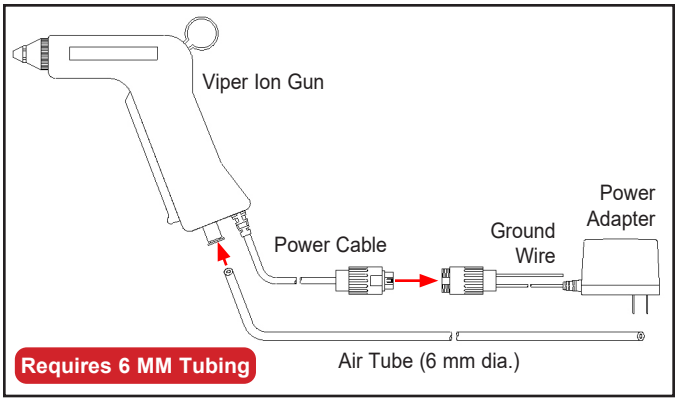

Figure 3. Installing the Viper Ion Gun

Operation

NOTE:

- Do not operate the main unit by turning the nozzle toward a human body, especially to the face or to the eye of a person. This may cause serious injury to the person.
- Do not let the nozzle of the main unit touch conductive or live parts.
- Do not drop the ion gun as it may damage the piezoelectric power supply embedded in the unit.
- This product emits ozone. Do not use this products in an enclosed space.

1. Hold the gun approximately six inches from the surface you want to neutralize and blow off. Aim the nozzle and hold down the trigger. The green LED on the back of the gun should illuminate. Static charges are typically discharged within one second.
2. Release the trigger when the surface is clean.

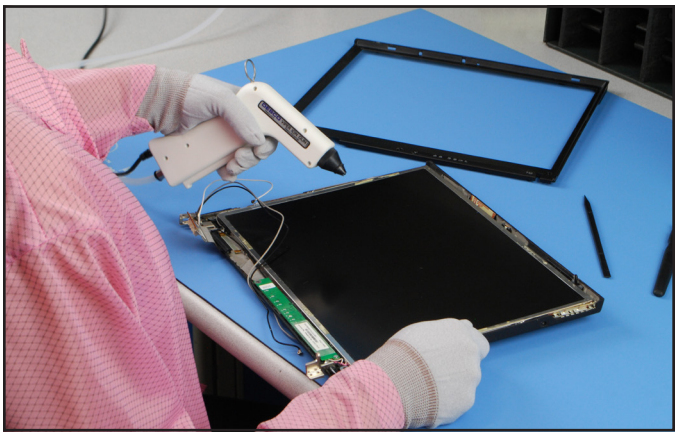

Figure 4. Using the Viper Ion Gun

Maintenance

"All ionization devices will require periodic maintenance for proper operation. Maintenance intervals for ionizers vary widely depending on the type of ionization equipment and use environment. Critical clean room uses will generally require more frequent attention. It is important to set-up a routine schedule for ionizer service. Routine service is typically required to meet quality audit requirements." (ESD Handbook TR20.20 section 5.3.6.7 Maintenance / Cleaning)

EIA-625, recommends checking ionizers every 6 months, but this may not be suitable for many programs particularly since an out-of-balance may exist for months before it is checked again. ANSI/ESD S20.20 section 6.1.3.1 Compliance Verification Plan Requirement states: "Test equipment shall be selected to make measurements of appropriate properties of the technical requirements that are incorporated into the ESD program plan."

Cleaning the Emitter Point

To maintain optimum neutralization efficiency and operation, cleaning should be performed on a regular basis. Use the Desco 60506 Emitter Point Cleaners or a swab dampened with isopropyl alcohol to clean the ion gun's emitter point.

1. Disconnect the ion gun from its power supply and air supply.
2. Remove the nozzle.
3. Gently clean the emitter point using a swab dampened with Isopropyl alcohol. Screw the nozzle back onto the ion gun when complete.

Replacing the Emitter Point

The Desco 19597 Emitter Replacement Kit is available should the emitter point need to be replaced. The kit includes 5 replacement emitter points and a tool needed to unscrew the emitter point from the Viper Ion Gun's nozzle.

1. Disconnect the ion gun from its power supply and air supply.
2. Remove the nozzle.
3. Use the tool included in the 19597 Emitter Replacement Kit to unscrew the emitter point located inside the gun's nozzle and replace it with a new one.
4. Secure the nozzle back to the ion gun.

Figure 5. Replacing the emitter point using the tool included in the 19597 Emitter Replacement Kit

Neutralization (Discharge) Times

All measurements were taken from ±1,000 V to ±100 V at a distance of 6 inches.

Air Pressure (psi)	15	29	44	58	73	87
+ Discharge (seconds)	.5	.3	.3	.2	.2	.2
- Discharge (seconds)	.6	.3	.3	.2	.2	.2

Specifications

Power Supply Input Voltage	100-240 VAC, 50/60 Hz
Power Supply Output Voltage	24 VDC
Operating Temperature	32ºF to 104ºF (0 to 40ºC)
Dimensions	6.5" x 5.4" x 1.0" (165 mm x 136 mm x 25 mm)
Weight	0.4 lbs (0.2 kg)
Balance	±15 V
Ozone	<0.04 ppm
Supply Pressure	7 psi to 87 psi
Minimum Airflow	13 CFM
Gas Input	Clean Dry Air (CDA) or Nitrogen
Gas Connection	6 mm port
Enclosure	Gun - PBT polymer Nozzle - PPS polymer

Limited Warranty, Warranty Exclusions, Limit of Liability and RMA Request Instructions