3M™ Ionized Air Gun 980/980E

User's Guide

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1.0 General Description

The 3M™ Ionized Air Gun 980/980E provides efficient static charge neutralization by effectively removing particle contamination even on some of the most static-sensitive products. The Ionized Air Gun 980 operates from 120VAC power, and the Ionized Air Gun 980E from 230VAC power. **All references to model 980 throughout this user's guide pertain to both of the models, unless otherwise noted.**

Proprietary technology provides constantly balanced ionization for consistent control of surface charges. The Ionized Air Gun 980 virtually never needs adjustment and requires very little maintenance.

Compact and lightweight, the console for the Ionized Air Gun 980 can be mounted almost anywhere on the workstation for easy access. It connects to asupply of clean, dry air or nitrogen, and an internal disposable filter collects particles from the air supply. The electrical feed from the console to the Ionized Air Gun 980 is incorporated into the light, flexible air hose. The Ionized Air Gun 980 itself is very lightweight and ergonomically designed for long-term user comfort and efficient operation. The console, Ionized Air Gun 980, and air hose are all designed to be static-dissipative and ESD-safe.

2.0 Performance

The Ionized Air Gun 980 helps reduce a static charge of ± 1000V to ± 100V in less than 1 second at a distance of 6 inches (15 cm) and 30 psi (2 bars) inlet pressure when tested in accordance with the ESD Association ionization standard ANSI/ESD-S3.1. Balance variance is within ± 70 volts of zero at a distance of 6 inches (15 cm).

3.0 Power Requirements

The Ionized Air Gun 980 console requires 24VAC power, which is provided by the transformer supplied with the unit. An 120AC transformer is supplied with the Ionized Air Gun 980, and 230VAC unit is supplied with the Ionized Air Gun 980E.

4.0 Air Supply Requirements

For maximized operation, the 3M™ Ionized Air Gun 980 should be supplied with clean, dry air, or nitrogen.

Please note that the failure to use clean, dry air or nitrogen may result in damage to the Ionized Air Gun 980 that will not be covered by warranty.

5.0 Installation

Choose a location convenient to the work area and to the air supply. The console takes up very little space and is adaptable to a variety of permanent or nonpermanent installations. To minimize bends in the air Ionized Air Gun 980 hose, orient the console so that the open end that accepts the filtered air hose to the hand unit points toward the work area, and the male connector points toward the air supply. See Figure 1.

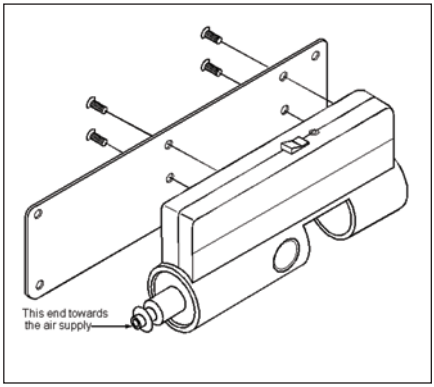

Figure 1

5.1 Mounting the Console

Prior to mounting, plug the end of the 10 foot (3 m) RJ-11 cable from the power supply into the jack on the back of the console. Lay the cable inside the groove inside the console. Mount the console using the instructions below.

5.2 Permanent Mounting

- Attach the supplied mounting plate to the threaded holes on the back of the console, using the supplied screws. See Figure 1.
- Attach the plate to a flat surface, such as a wall or back of a workbench, using suitable screws and fasteners. When mounting to a hollow wall, be sure to use adequate screws and wall anchors to ensure stability of installation.

5.3 Non-permanent Mounting

Use 3M™ Dual Lock Fastener Strips or pads to attach the console to a flat surface.

5.4 Mounting onto an Air Supply

When an air supply is close to the work area and fitted with a U.S.- standard industrial interchange quick coupling, you can attach the console to the air supply fitting directly using the female quick coupler provided with the console. If a U.S.-standard industrial interchange quick change is not available on the air supply, be sure to use a suitable interconnect between the air supply and the console, including a prefilter as defined in Section 4.0.

6.0 Assembling the Components

⚠ CAUTION

Protect the hose from sharp objects, abrasion, and high temperatures. Do not pull or pinch the hose while assembling the components.

6.1 Insert the larger end of the filter cartridge into the fitting at the end of the flexible air hose. Push the filter gently until it is firmly seated and the metal Filter Release Tab pops out, locking the filter into place. See Figure 2.

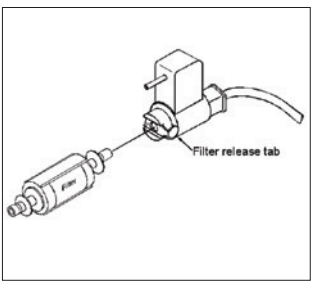

Figure 2

6.2 Connect the hose and filter to the console. First, push the Filter Release Button (Figure 3) in all the way. Then, push the fitting containing the filter all the way into the opening in the console until it latches with a click. The fitting fits only in the correct orientation. The small plastic fitting on the end of the filter must align with the metal guide coupling in the console. You may have to wiggle the filter slightly while inserting it. See Figure 3.

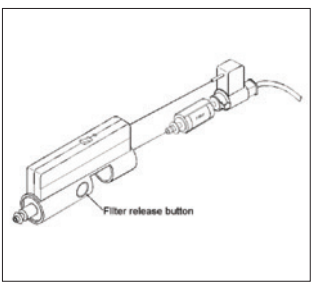

Figure 3

6.3 Connect the male (air inlet) fitting on the console to the air supply. The console is designed for a U.S.-standard, industrial interchange quick coupling. You can attach the console directly to the air supply using the female quick coupler provided with the console, or attach it using a hose (not supplied) or some other interconnect. In both cases, use a prefilter as defined in 4.0.

7.0 Operation

⚠ WARNING

The 3M™ Ionized Air Gun 980/980E is NOT for use in hazardous environments where the possiblity of explosion exists.

7.1 Make sure the Power Switch on the top of the console is in the OFF position. Insert the power cord to the transformer into a properly grounded 120VAC (for Ionized Air Gun 980) or 230VAC (for Ionized Air Gun 980E) receptacle. Use only the correct transformer, as use of an incorrect wall transformer may result in damage to the unit. Doing so will void the warranty. Refer to Section 3.0 for additional information.

7.2 Secure the power cord so that it cannot accidentally pull the console and Ionized Air Gun 980 off the workbench.

7.3 For safety and the most efficient ionization, set the pressure regulator on your air or nitrogen supply between 20-65 psi (1.4 - 4.5 bars). Discharge times vary depending on air pressure.

Note: Pressures of 30-40 psi (2.0-2.8 bars) are commonly used for decontaminating surfaces. Please refer to the pertinent regulations concerning maximum air pressure on hand-held air blow devices in order to determine a safe operating pressure.

The unit is rated at 65 psi (4.5 bars) inlet pressure, at temperatures up to 75º F (24º C), and the rating decreases at higher temperatures. When using high pressures, consider the ambient room temperature as well as heat from surrounding equipment.

7.4 Verify that the Ionized Air Gun 980 trigger is not depressed. Turn the power switch on the console to ON. The green LED on the console should illuminate.

7.5 Hold the 3M™ Ionized Air Gun 980 approximately 6 inches (15 cm) from the surface you want to discharge and blow off. Aim the Ionized Air Gun 980 and press the trigger to blow ionized air. The green LED on the back of the Ionized Air Gun 980 lights up while you press the trigger, indicating that the Ionized Air Gun 980 is ionizing. Typically, static electricity on a surface will be discharged within one second. Release the trigger when the surface is assumed to be clean.

7.6 If the Ionized Air Gun 980 is not in use, it is recommended that the Power Switch on the console be turned off. This will avoid unintentional operation of the Ionized Air Gun 980. The included S-hook may be used to hang the Ionized Air Gun 980 out of the way but still within reach.

8.0 Maintenance

The Ionized Air Gun 980/980E requires very little maintenance. Occasional cleaning of the case and emitter points, and periodic replacement of the air filter are all that is required. Always be sure to protect all components from liquids and corrosive chemicals. Carefully follow these maintenance instructions.

⚠ CAUTION

Always disconnect power and air supplies before cleaning or replacing components.

8.1 Cleaning the Components

8.11 Using a cloth moistened with isopropyl alcohol, wipe the exterior surfaces of the console and Ionized Air Gun 980 to remove any dirt or dust that may have collected.

8.12 Using a swab moistened with isopropyl alcohol, gently clean the emitter points on the Ionized Air Gun 980. Extremely dirty emitter points will increase the time needed to discharge static.

8.2 Replacing the Air Filter

3M recommends changing the filter every three months or when it begins to look dirty. Replacement filters are available from 3M (see Table 1).

8.21 Hold down the filter release button on the side of the console.

8.22 Remove the hose and filter from the console by pulling the textured rubber plug where the hose emerges from the console. Rocking the plug back and forth can help loosen the filter. Do not pull the hose itself. Remove the filter from the hose fitting by depressing the metal release tab on the fitting and pulling the filter.

8.23 To install the new filter, follow the directions described previously under Sec. 6.0.

8.3 Replacing the Emitter Points

The emitter points, built into the plastic tip of the Ionized Air Gun 980, usually last the life of the unit. However, the tip should be replaced if it is broken, or if the points are bent, broken, otherwise damaged, or if you are unable to remove dirt by cleaning the points with isopropyl alcohol. A replacement tip containing a pair of emitter points is available from 3M (see Table 1).

8.31 Insert the tip of a screwdriver into the slot on the 3M™ Ionized Air Gun 980 barrel. See Figure 4.

8.32 Using the screwdriver as a lever, loosen the old clip, grasp it between your thumb and forefinger, and detach it from the Ionized Air Gun 980. The emitter points are very sharp; touch only the plastic lip, and handle it carefully. To avoid damaging the points, do not touch them with hard objects such as a screwdriver.

8.33 To insert the new emitter points, hold the Ionized Air Gun 980 with the barrel pointing up.

8.34 Grasp the new clip between your thumb and forefinger, and align it so the curved edges match the curve of the inside of the Ionized Air Gun 980 barrel.

8.35 Align the blunt prongs of the emitters with the holes in the 3M™ Ionized Air Gun 980 barrel and set the clip into place.

8.36 Press the clip all the way in using the tip of a screwdriver. It should fit snugly between the raised rim of the barrel and the raised rim of the air nozzle. If the clip overlaps the air nozzle, it is installed backward.

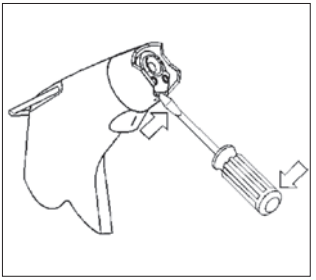

Figure 4

Table 1: Replacement and optional parts

Part	Part #	Status
120VAC Wall Transformer	960/980X	Replacement
230VAC Wall Transformer	980E-X	Replacement
Air Filter 3-Pack	980-F	Replacement
Emitter Points	980-T	Replacement

8.4 Replacement & Optional Parts

Table 1 lists the replacement parts and optional parts available for the 3M™ Ionized Air Gun 980/980E.

8.5 Testing for Proper Operation

8.51 To make sure that your 3M™ Ionized Air Gun 980 is working properly, check the balance and discharge levels. The performance of the unit should be measured periodically using a charged plate monitor, such as the 3M™ Charge Analyzer 711 or the 3M™ Static Sensor 718.

8.52 Calibration should be performed in accordance with the ESD Association ionization standard ANSI/ESD-S3.1. At a line pressure of 30 psi (2 bars), discharge of ± 1000 volts to ± 100 volts should require less than 1 second at a distance of 6 inches (15 cm) and balance should be within ± 70 volts of zero.

9.0 Specifications for 3M Ionized Air Gun 980/980E

9.1 General

Audible Noise	73dBA @ 1 meter, 30 psi (2 bars) pressure to air gun
Ozone	<0.005 ppm (24 hour accumulation)
Certifications	cULus for Ionized Air Gun 980 CE for Ionized Air Gun 980E

9.2 Hand Unit

Construction	Static-dissipative polycarbonate
Ion Emission	Steady-state DC
Emitter Points	Tungsten alloy
Ion Indicator	Green LED
Air Hose	7’ (2.1m) length, 3/8” (0.96 cm) outside diameter of static dissipative polyurethane
Gun Hanger	#302 stainless steel
Dimensions	8.0” L x 3.0” W x 1.0” D (20.3 cm L x 7.6 cm W x 2.5 cm D)
Weight	12.0 oz. (341 g) with 7’ (2.1 m) air hose

9.3 Console

Construction	Static-dissipative polycarbonate
Input Power	24VAC, <10 Watts, powered from transformer
Power	Indicator Green LED
Air/Gas Input	20-65 PSI (1.4 - 4.5 bars), clean dry air or nitrogen *For safety purposes, this unit has been tested at 1.5 times these air pressures.*
Air/Gas Connection	1/4" (0.64 cm) male US-industrial interchange quick disconnect and 1/4" (0.64 cm) NPT female coupler
Air Filter	99.9% efficient, 0.1 micron or larger
Mounting	Metal mounting plate attaches to back of the unit
Dimensions	8.5" L x 3.0" W x 1.6" D (21.6 cm L x 7.6 cm W x 4.1 cm D)
Weight	11.5 oz (326 g)

9.4 Transformer

Input	3M™ Ionized Air Gun 980: 120VAC (960/980X) 60 Hz 410A 3M™ Ionized Air Gun 980E: 230VAC (980E-X) 50 Hz 250mA
Output Power	24VAC, 1670 mA
Cabling	10' (3 m) cable with RJ-11 connectors (from power supply transformer)
Dimensions	8” H x 8” W x 2.3” D (203.2 mm H x 203.2 mm W x 58.42 mm D)
Weight	4 lbs.
Certifications	cULus, RoHS, RoHS (China) (120VAC model) CE, RoHS, RoHS (China) (230VAC model)

10 Package Contents

1 ea. Air Gun
1 ea. Console
1 ea. Air Hose
1 ea. Power Supply
1 ea. User’s Guide

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