

Static Controls

TSN70 Specifications

Static Neutralizing Power Unit

General Description

The *Static Clean* Static Neutralizing System consists of two parts:

- A high impedance, high voltage, lower power, constant voltage, Power Unit
- An "Applicator" (Air Ionizer in the form of a bar or rod, air blower, air gun, air nozzle, or air knife).

The system is designed to create an abundance of bipolar air ions in a "field" which tends to neutralize electrically charged materials (paper, plastic, glass, wood, etc.) that pass through it.

The Static Neutralizing Power Unit

The TSN70 Static Neutralizing Power Unit is a low power, high impedance, step-up transformer, potted with internal current limits to provide appropriate power to the "Applicator," and safety to the user. This unique power unit features a constant voltage transformer, which provides stable output voltage despite line voltage fluctuations.

Inspect the Power Unit for visible damage that may have occurred during shipment. If the unit was damaged in shipment, please report it to your Receiver and contact us so that we may promptly send a replacement.

Locating the Static Neutralizing Power Unit

The Static Neutralizing Power Unit has been designed for optimum performance in a room ambient not exceeding 40°C / 104°F. Locate the Power Unit as close as possible to the applicator using its mounting plate to securely fasten the unit in place. Choose a location free of oil, water and gross contamination. Mount the Power Unit so that the High Voltage Output Ports are facing down or to either side to prevent entry of foreign



material. Unless specified differently on the order, each static bar is equipped with a standard 6 foot (1.8m) length of high voltage cable inside a metal braid Alpha shield. This length of cable allows the installation of two static bars approximately 10 feet (3m) apart connected to one, centrally located power unit. If the high voltage cable is too long, you may coil it and secure it neatly out of harm's way. Because the cable is shielded, there will be no adverse effects such as excessive flux fields or noise that can result from unshielded cable.

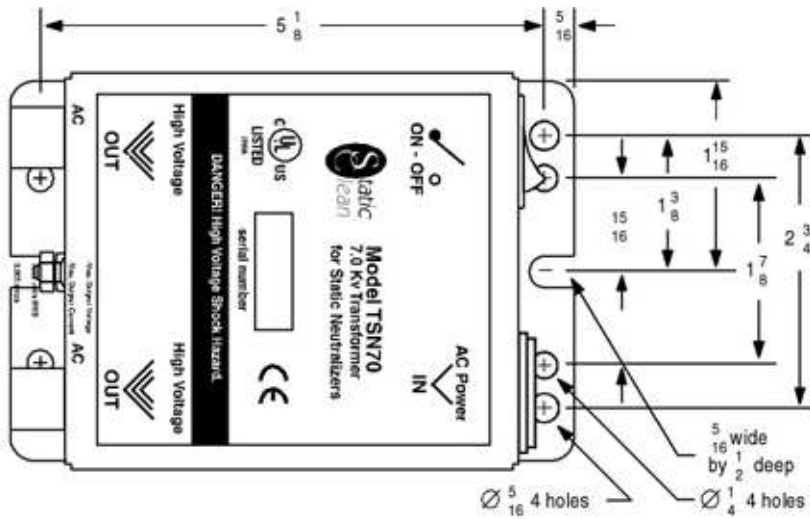
CAUTION: IT IS IMPORTANT THAT ONLY QUALIFIED PERSONNEL FAMILIAR WITH HANDLING HIGH VOLTAGE ELECTRICAL EQUIPMENT BE TRUSTED TO INSTALL, SERVICE, AND TROUBLESHOOT THIS EQUIPMENT. FEEL FREE TO CONSULT THE FACTORY IF YOU HAVE ANY QUESTIONS.



Static Clean International • 15 Adams St., Burlington, MA 01803
Tel: 781-229-7799 Fax: 781-229-4555 • www.staticclean.com

Static Controls

Model TSN70 Specifications



Power-Line Voltage 115VAC or 230VAC, 50/60Hz, single-phase

The TSN70 Power Unit comes standard with a voltage selector switch, enabling the end user to connect the power line cord to 115V, or 230V, 50/60Hz single-phase power. A detachable (from the power unit) three-conductor line cord with a ground-prong plug comes with the unit. Be sure to plug the cord into a grounded

Grounding the Static Neutralizing Power Unit

If you elect to mount the Power Unit to a wall or any other non-metal, non-grounded surface, you must attach an external ground wire. Attach one end to the ground stud located above and between the High Voltage Output Ports, and the other end to a suitable, confirmed good, electrical “ground”.

Mounting the Static Neutralizing Power Unit

The base of the Power Unit contains eight mounting holes and one slot on each end. Using the dimensions herein provided, drill and tap two or four holes (10-32 or 1/4-20 are adequate to secure the Power Unit in place) into the metal machine frame.

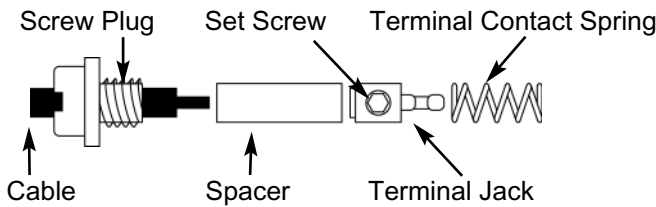
Mount the Power Unit so that the High Voltage Output Ports are facing down. The second best mount would be to face the ports right or left...not up. This will prevent contamination from traveling down the cable and into the high voltage port, possibly causing a high voltage “short” circuit.

three-prong receptacle. Power cords with US, UK or Euro plugs (sold separately) are available and must be specified at the time of order.

VERY IMPORTANT – Before plugging the unit into a power source, be sure to set the voltage selector switch, found between the power cord receptacle and rocker switch on the end of the unit, to the proper input voltage setting, either 115V or 230V. Failing to properly set the switch can damage or destroy the power unit, increasing risk of high voltage shock to operators and/or void the warranty.

Remember: proper grounding of the Static Neutralizing Power Unit is essential to the safety of the user and proper operation of the equipment. A power cord with a ground prong as supplied (or by other) must be used to assure the Power Unit is grounded. For added convenience and safety, these Power Supplies come equipped with a fuse and a lighted on/off switch. A spare fuse is included, stowed inside the removable fuse retainer.

7.0 kV Static Neutralizing Power Unit



Attaching the Connector Kit to the High Voltage Cable (Alpha-shielded cable only)

1. Remove the dust cover from the high voltage output port and insert the high voltage cable connector firmly in place.
2. While pushing to compress the spring, thread the retaining nut into the threaded output port and finger tighten firmly.
3. Secure ring terminal on green grounding lead to grounding stud between output ports on power unit.
4. After the static bar and power unit have been properly installed, positioned and grounded, plug the power unit line cord into a properly grounded 3-wire AC electrical outlet. Be sure the line voltage and frequency supplied matches that specified on the TSN70 nameplate. Do not remove the ground prong from the line plug or use a three to two prong adapter.

Attaching the Connector Kit to the High Voltage Cable (non-shielded cable only)

After you have determined the locations of the "Applicator" and Power Unit and cut the cable to the shortest length between them, attach the High Voltage Cable Connector as follows:

1. Slide the retaining nut over the end of the cable with threads facing the cable end.
2. Slide the spacer onto the cable.
3. Carefully strip approximately 1/2 inch of insulation from the end of the high voltage cable exposing the conductors.
4. Twist the conductor strands and insert them into the hole in the end of spring retainer.
5. Tighten the set screw in the retainer until the conductors are held firmly in place.

Connecting to the Static Neutralizing Power Unit

The TSN70 Power Unit is equipped with two High Voltage Ports internally threaded to accept the *Static Clean* High Voltage Connector Kit as well as most other manufacturer's similar high voltage connector kits.

These connectors consist of a Screw Plug, Plastic Spacer, Terminal Jack, and Terminal Contact Spring. Remove the dust cap from the High Voltage Output Port and fully insert the cable and connector assembly. Tighten the Screw cap (finger tight and secure) into the High Voltage Output Port.

Operation

Before turning the power on, be sure the Power Unit is secure in its mounting, all grounds and connections are proper and secure, line voltages and frequency are appropriate and that the "Applicator" is clean and correctly installed. Apply the line voltage and push the switch to the "on" position.

Specifications: TSN70

Type:	High voltage AC, constant output transformer.
Input Voltage115/230 VAC
Frequency:50/60 HZ
Output Voltage:7.0 kV
Input Current:0.5/0.25A
Output Current:5mA
Line Cord:6' detachable with US 3-prong grounded plug
Optional Cord:UK, Euro, US 230V grounded plugs available
Weight:5.75lbs
Dimensions:	width:4" height:3.5" length:5.75"

Certifications:



Maintenance

Both the Power Unit and the "Applicator" must be kept clean and free of water, oil, grease, solvents and other contaminants that would cause short circuits to them or any electrical device. Although this Power Unit is made with reliable, high quality components and great care, a contaminated, arcing, sparking, "Applicator" will shorten the life of both "Applicator" and Power Unit.

Troubleshooting

Only a qualified person familiar with handling high voltage equipment should attempt to troubleshoot and service this equipment.

- Turn the power off and disconnect all applicators.
- Confirm that grounds are proper and secure
- Confirm line voltage and frequency are appropriate and applied
- Confirm that voltage selector switch setting matches actual input line voltage.
 - If the switch was set to 230V and plugged into 115V, the unit is likely OK. Change the switch setting to 115V and

power up the unit to see if it works. If it still does not work, consult the factory.

- If the switch was set to 115V and plugged into 230V, the glass fuse, located inside the black plastic retainer in the a/c inlet module (where the power cord plugs into the unit) must be replaced. A spare fuse is also located in the retainer. Discard the blown fuse and replace with the spare fuse, switch unit to 230V and then reconnect to power. If still not working properly, consult the factory.
- Confirm good fuse inside the A/C inlet where the detachable cord plugs into the power unit. Replace if needed.
- Confirm the "on" switch is "on."

Please also note that some high voltage test probes give inaccurate readings when testing high impedance, low power, power supplies. For further assistance, please consult us at our factory. Phone:781-229-7799 Fax: 781-229-4555

TSN70 Agency Listings

UL - Listed for United States and Canada. Static Neutralizing Power Unit.

CE - To standards EN5501. Note: To meet CE requirements, the "Applicator" (Air Ionizer in the form of a bar or rod, air blower, air gun, air nozzle, or knife) must utilize a shielded cable to reduce high voltage interference with sensitive electronic control systems.

Additional Electrostatic Products and Services

- **Instruments, Electrostatic Measuring:** Miniature Handheld and Rack Mount, mV to kV Voltmeters, Fieldmeters, Monitors and Alarm; Resistivity / Resistance Meters (104-1014); NanoAmmeters and Nanocoulombmeters; Faraday Cups and Charged Plate Analyzers.
- **Equipment, Static Neutralizing:** Ionizing Air Blowers, Air Nozzles, Air Guns, Air Knives, Grounding Bars and Brushes.
- **Static Neutralizing / Vacuum:** Web Cleaners and Sheet Cleaners (Narrow and Wide) Static Generating: Bars (4 to 120 inches); Spot Chargers.
- **Power Supplies:** 110-220VAC, 50-60hz (4 to 7.5kV) 14-110VAC/DC (1 to 20kV), Constant Voltage - Constant Current Controllers
- **Services:** Electrostatic (ESD) Audits, In-plant Surveys, Training, Consultation, and Application Engineering.



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