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SIMCO ION™

An ITW Company

Power Units (All Potted Models)

INSTALLATION AND OPERATING INSTRUCTIONS

TABLE OF CONTENTS

1. SAFETY WARNINGS 1

2. INTRODUCTION 2

Technical Assistance 2
Receipt of Equipment 2
Return Shipments 2

3. SPECIFICATIONS 3

4. INSTALLATION 4

Mounting and Grounding of Power Unit 4
Input Line Voltage Connections 5
High Voltage Connections for Standard Cable without Shielding 5
High Voltage Connections for Cable with Optional Stainless Steel Shielding 6
Removal of Shielded Cable from Power Unit 7
Installation of Spring-Loaded High Voltage Connector 7
Removal of Spring-Loaded High Voltage Connector 8

5. OPERATION 9

6. MAINTENANCE 10

7. TROUBLESHOOTING 11

8. WARRANTY 12

1. SAFETY WARNINGS



NOTE – Statements Identified with a NOTE indicate precautions necessary to avoid potential equipment failure.



WARNING – Statements identified with a CAUTION indicate potential safety hazards.

1. This equipment must be correctly installed and properly maintained. Adhere to the following cautions for safe installation and operation.
2. Read instruction manual before operating or installing device.
3. Qualified service personnel must do installation and repairs.
4. Ground the frame of the machine on which the power supply and neutralizing bars are mounted.
5. Disconnect supply voltage to power supply before connecting neutralizing bar to the high voltage terminal strip.



CAUTION – **Electrical Shock Hazard** – Do not touch bar when power supply is energized.

Disconnect supply voltage to power supply before connecting bar or performing any maintenance to the system.

2. INTRODUCTION

NOTE – Simco-Ion recommends that these instructions be read completely before installation or operation of this equipment. Failure to do so could result in personal injury and/or damage to the equipment.

The Simco-Ion Power Unit provides a high voltage output for powering various types of Simco-Ion static eliminating equipment. Although there are many individual models, all are basically the same with respect to mounting, connections, and operation. These power units are potted in a metallic enclosure and require no maintenance or adjustments.

Each power unit operates on a specific line voltage and frequency and provides a specific high voltage output. The power unit supplied is based on the type of static eliminating equipment it is powering. The power unit must only be used with the equipment for which it was originally supplied. Do not add any other device to the power unit without consulting Simco-Ion.

Technical Assistance

Simco-Ion Customer Service provides technical support such as diagrams and replacement parts lists upon request. Contact information is listed on the back cover of this instruction manual.

Receipt of Equipment

1. Carefully remove equipment from the carton.
2. Inspect contents for damage that may have occurred during shipment. If any damage has occurred during shipment, the local carrier should be notified at once. A report should be forwarded to Simco-Ion, 2257 North Penn Road, Hatfield, PA 19440.
3. Empty the carton to insure that small parts are not discarded.

Return Shipments

Prior to returning goods, contact Simco-Ion Customer Service representative for a Return Authorization Number. This number should be included on the packing list. All correspondence should also reference the Return Authorization Number. Any item being returned should be shipped prepaid and packed to provide adequate protection.

3. SPECIFICATIONS

Electrical Ratings			
Model	**Input**	**Output**	**Approvals**
D165	120V, 60 Hz, 1/4A	5000V, 5 mA	UL, CSA, CE+RoHS
D167	120V, 50/60 Hz, 1/4A	7000V, 5 mA	UL, CSA, CE+RoHS
D255	230V, 50 Hz, 1/8A	5800V, 5 mA	UL, CSA, CE+RoHS
D257	230V, 50 Hz, 1/8A	7000V, 5 mA	UL, CSA, CE+RoHS
F167	115V, 50/60 Hz, 1/4A	7500V, 5 mA	UL, CSA, CE+RoHS
F267	230V, 50/60 Hz, 1/8A	7500V, 5 mA	UL, CSA, CE+RoHS
H164	120V, 50/60 Hz, 1/4A	4000V, 5 mA	UL, CE+RoHS
H254	230V, 50/60 Hz, 1/8A	4000V, 5 mA	UL, CE+RoHS
H265	230V, 60 Hz, 1/8A	5800V, 5 mA	UL, CE+RoHS
R165	120V, 50/60 Hz, 1/4A	5000V, 5 mA	RU, CE+RoHS
R265	230V, 50/60 Hz, 1/8A	5100V, 5 mA	RU, CE+RoHS
S165	120V, 60 Hz, 1/4A	5000V, 5 mA	RU, CRU, CE+RoHS
S265	230V, 60 Hz, 1/8A	5000V, 5 mA	RU, CRU, CE+RoHS

Environmental Conditions		
Temperature	**Operation**	0-40°C
	Ship/Store	0-50°C
Humidity	**Operation**	10-80% RH, non-condensing
	Ship/Store	10-100% RH
Altitude	**Operation**	2000m maximum
Supply Voltage Fluctuation		+/-10% maximum
Indoor Use Only (CSA install Cat II, poll. deg. 2)		

4. INSTALLATION

Mounting and Grounding of Power Unit

The power unit is designed for flat surface mounting with mounting flanges at the base of the unit. The ambient temperature where power unit is located should not exceed 105°F (40°C). Proper grounding of power unit metallic enclosure is essential for safe and efficient operation of the equipment. Proper grounding can be accomplished by either of the following methods:

1. For power unit mounted on machine, connect the power unit ground stud and earth ground with at least a #16 AWG copper wire.
2. All power units are equipped with a 3-conductor line cord.

For power unit with 120 VAC operating voltage, the line cord is fitted with a standard NEMA 5-15P plug. Ensure that the line cord is plugged into a 3-terminal grounded receptacle.

For power unit with 230 VAC operating voltage, the line cord is fitted with a standard NEMA 6-15P plug. Ensure that the line cord is plugged into a 3-terminal grounded receptacle.

For power unit that is equipped with a plug-less 3-conductor line cord, the ground wire (GREEN or GREEN/YELLOW) must be connected to earth ground.



CAUTION – Electrical Shock Hazard

Failure to properly ground power unit may result in electrical shock hazard to personnel and inefficient operation of equipment.



ACHTUNG – Stromschlaggelahr

Ein unzureichend geerdetes Netzgerat kann eine Stromschlaggelahr für das Personal darstellen und zu einem ineffizienten Betrieb des Gerates fuhren.



ATTENTION – Danger d'élctrocution

Une alimentation avec une mise ilia terre insuffisante peut constituer un danger d'electrocution pour les personnes et conduire a un mauvais fonctionnement de I'appareil.

Input Line Voltage Connections

The line cord must be connected to a power source of the correct voltage and frequency as listed on the nameplate. For power unit with 120 or 240 VAC operating voltage, the line cord is fitted with a plug. For power unit with a plug-less line cord, the following connections is required:

N. America Wire Color	International Wire Color	Power Connection
Black	Brown	Live
White	Blue	Neutral
Green	Green/Yellow	Ground

If the static eliminating equipment is used on machinery, it is recommended that the line cord of the power unit be connected to the machine "RUN" button. This enables the static eliminating equipment to turn on and off with the machine. Some power unit is equipped with ON/OFF switch with indicator.



CAUTION – Electrical Shock Hazard

Do not apply line voltage to power supply until all grounds and high voltage connections of the equipment are completely installed.



ACHTUNG – Stromschlaggefahr

Verbinden Sie das Gerät nicht mit Nelzspannung, bevor alle Erdverbindungen hergeslelll sind und alle Hochspannungsverbraucher angeschlossen sind.



ATTENTION – Danger d'éleclroculion

Ne pas meltre I'appareil sous tension avant de s'elre assuré que toules les mises a la terre ont bien élé effectuees el que tous les appareils alimentes en haule tension sont connectés.

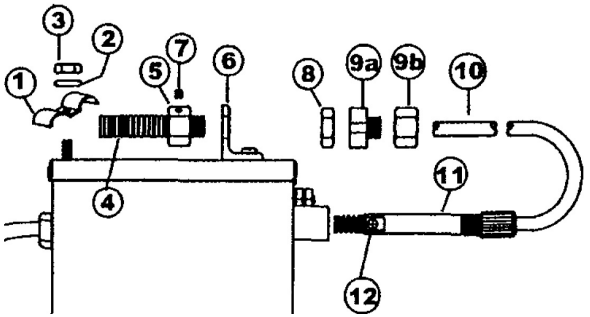
High Voltage Connections for Standard Cable without Shielding

The high voltage cable on the static eliminating equipment may be shipped with the spring-loaded high voltage connector affixed to it. If the connector is not installed on the cable, it must be installed as described in Section 2. The power unit may have two or four high voltage output terminals. Insert the spring-loaded high voltage connector into one of the output terminal and finger-tighten the connector. Some static eliminating equipment may have a separate green or green/yellow ground wire running along the high voltage cable and must be connected to the ground terminal on the power unit. When routing the high voltage cable, take precaution to prevent the high voltage cable from contacting any conductive object by using the insulated cable supports provided. This will prevent high voltage from arcing through the cable hence, causing cable burnout.

High Voltage Connections for Cable with Optional Stainless Steel Shielding

Some static eliminating equipment is equipped with shielded high voltage cable and has a separate ground wire and must be connected to the ground terminal on the power unit. Insert the spring-loaded connector into the high voltage output terminal of the power unit and finger-tighten.

Ionizing air guns and certain HS Nozzles with shielded cable are shipped with all connections completed by the factory as shown in Figure 1 below. For equipment that requires on site-connections, refer to the assembly procedures below.



NOTE – Do not alter the length of shielded cable. Should this become necessary, contact Simco-Ion for further information.

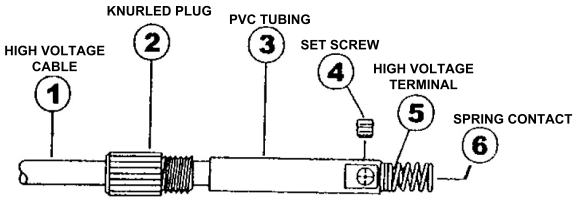
1. Insert the high voltage cable end through the angle bracket (item 6) of the power unit.
2. Install and tighten hex nut (item 8).
3. Install male section of nylon compression fitting (item 9a) as shown and tighten securely onto the hex bushing (item 5).
4. Install and tighten female section of the compression fitting (item 9b).
5. Install the spring-loaded high voltage connector (item 11) on the high voltage cable as described in Section 2.
6. Insert the spring-loaded high voltage connector into the high voltage output terminal of the power unit. Finger tighten.
7. Install strain relief clamp (items 1, 2, 3).

Removal of Shielded Cable from Power Unit

1. Disconnect line voltage to power unit.
2. Remove hex nut (item 3) and cable clamp (item 1).
3. Loosen spring-loaded high voltage connector (item 11) and remove from high voltage output terminal of power unit.
4. Remove set-screw (item 12) from the spring-loaded high voltage connector with a 5/64" Allen wrench to remove connector from shielded cable.
5. Loosen and remove both sections of the nylon compression fitting (items 9a, 9b). The protective sleeve (item 10) should remain on the cable.
6. Remove hex nut (item 8). The entire cable assembly may now be removed from the power unit.

Installation of Spring-Loaded High Voltage Connector

Two types of high voltage cables are used on Simco-Ion equipment. The larger diameter cable (black) requires the 5050001 connector and the smaller diameter cable (red) uses the 5050002 connector. Installation of both connectors is the same with the exception of step "1 ". Refer to Figure 2 below for details.



1. For black cable, measure and strip 1/2" insulation from end of cable. Straighten conductor strands.
2. For red cable, measure and strip 1" insulation from end of cable. Straighten conductor strands and bend back to form a double thickness 1/2" long.
3. Slide the knurled plug (item 2) onto the cable (item 1) with the threaded end toward the end of the cable.
4. Slide the PVC tubing (item 3) over the cable with the set screw hole positioned toward the end of the cable.
5. Slide the high voltage terminal (item 5) over the conductor until it butts against the cable insulation. Make certain all conductor strands are inside the high voltage terminal.
6. Align set screw holes of the PVC tubing and high voltage terminal.
7. Insert and tighten set screw. Pull firmly on the cable to ensure the set screw is well seated and tight.
8. Screw the spring contact (item 6) onto the high voltage terminal.

Removal of Spring-Loaded High Voltage Connector

Insert a 5/64" Allen wrench to remove set screw (item 4) from high voltage terminal. Proceed to remove spring-loaded high voltage connector (item 2, 3, 5, 6) from cable. Refer to Figure 2 for details.

5. OPERATION

Before placing the static eliminating equipment into operation, make certain all connections including grounds have been completed as described in Section 2. Make certain the static eliminating equipment is properly installed.

To operate the static eliminating equipment, apply line voltage to the power unit. For power unit equipped with an ON/OFF switch, place the switch to the ON position.



CAUTION – Electrical Shock Hazard

Do not launch high voltage outlet when power unit is energized. Turn off power unit when equipment is not in use.



ACHTUNG – Stromschlaggefahr

Berühren Sie nicht die Hoschspannungsausgiinge, wenn das Nelzgerät in Betrieb ist, Schalten Sie das Netzerät ab, wenn es nicht in Betrieb ist.



ATTENTION – Danger d'élctrocution

Ne pas toucher les sorties haule tension lorsque I'alimentation est en marche. Eteindre I'alimentation lorsque celle-ci n'est pas en service.

6. MAINTENANCE

Under normal conditions, the power unit requires no periodic maintenance. The user may occasionally check to make certain all grounds and electrical connections are clean and tight.



WARNING – Maintenance to be performed by qualified service personnel.



WANUNG – Warlungsarbeiten dürfen nur von Elektrofachpersonal durchgeführt werden.



AVERTISSEMENT – Les travaux d'entretien doivent etre effectues exclusivement per des électriciens qualifiés.

7. TROUBLESHOOTING

If problems are encountered with operation of the static eliminating equipment, it is recommended that the user contact Simco-Ion for assistance.

Since high voltage is present, it is important that troubleshooting and servicing be performed only by properly trained and qualified service personnel, familiar with handling high voltage equipment.

1. Disconnect line voltage to power unit.
2. Disconnect all static eliminating equipment from the high voltage output connectors of the power unit.
3. Assemble a grounding stick by attaching a short piece of insulated wire with stripped ends to one end of an insulated rod (plexiglass, fiberglass etc.) approximately 12" long.
4. Connect the grounding stick to the ground stud of the power unit. Ensure that the power unit is properly grounded as described in Section 2.
5. Using a screwdriver with a good insulated handle, insert the screwdriver blade into the high voltage output connector.
6. Stay clear of the power unit and re-connect line voltage to the power unit.
7. Slowly approach the exposed screwdriver blade with the ground stick. A strong, heavy arc should occur between the ground stick and screwdriver blade. The arc should be approximately 1/16" to 1/8" long for power unit with outputs from 2.5 to 4.0 kV, 1/8" to 3/16" for 4.0 to 6,0 kV and 3/16" to 1/4" for 6.0 to 7.0 kV.
8. The power unit is defective and should be replaced if the arc is not as described above.



CAUTION – Electrical Shock Hazard

Do not touch high voltage outlet or screwdriver blade when performing this test.



ACHTUNG – Stromschlaggefahr

Fassen Sie bei der Durchführung Tests nicht an den Hochspannungsausgang oder an die Schraubendreherklinge.



ATTENTION – Danger d'élctrocution

Durant le test ne pas toucher la sortie haute tension ou la lame du tournevis.

8. WARRANTY

This product has been carefully tested at the factory and is warranted to be free from any defects in materials or workmanship. Simco-Ion will, under this warranty, repair or replace any equipment that proves, upon our examination, to have become defective within one year from the date of purchase.

The equipment being returned under warranty should be shipped by the purchaser to Simco-Ion, 2257 North Penn Road, Hatfield PA 19440, transportation prepaid and insured for its replacement cost. Prior to returning any goods for any reason, contact Simco-Ion Customer Service at (215) 822-6401 for a Return Authorization Number. This number must accompany all returned items.

This warranty does not apply when the equipment has been tampered with, misused, improperly installed, altered, has received damage through abuse, carelessness, accident, connected to improper line voltage, or has been serviced anyone other than an authorized factory representative.

The warranty does not apply when Simco-Ion parts and equipment have been energized by other than the appropriate Simco-Ion power supply or generator, or when a Simco-Ion power supply or generator has been used to energize other than Simco-Ion parts and equipment. Simco-Ion makes no warranty, expressed or implied, nor accepts any obligation, liabilities, or responsibility in connection with the use of this product other than the repair or replacement of parts stated herein.

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