SIMCO ION™

An ITW Company

TrueAC, TrueACX4

INSTALLATION AND OPERATING INSTRUCTIONS

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1. SAFETY WARNINGS

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

CAUTION – 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.

CAUTION – Fire Hazard – Do not install or operate neutralizing bar in close proximity to any flammable solvents.

2. INTRODUCTION

TrueAC and TrueACX4 Power Supplies (120 & 230V, 50/60 Hz)

The TrueAC power supply is equipped with a monitoring circuit with provisions for remote On/Off control and remote monitoring. The units are designed to operate with either the R50 or R51 Blue Bars to provide monitored static control performance on stationary objects or on materials traveling at speeds up to 2,500 feet per minute. The power supplies consist of the monitoring circuit and a ferroresonant type transformer rated at either 5,000 or 7,000 volts, 3 mA, with a short circuit current limit of 5 mA. The units are equipped with output sockets to connect 2 or 4 static neutralizing bars.

Features of TrueAC Power Supplies

- Bar ON indicator
- Bar OFF indicator
- Remote monitoring capabilities for CLEAN BAR*, FAULT*, and SERVICE*
- CLEAN BAR Indicator – factory set at 40% of maximum bar efficiency, or can be set by user in the field
- FAULT indicator
- BAR PERFORMANCE RANGE Indicator
- Arc Detection circuit

* Dry contacts available via remote connector included with the unit.

Receipt of Equipment

1. Carefully remove the 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, and (215) 822-6401.
3. Empty the carton to insure that small parts are not discarded.

Return Shipments

Prior to returning goods, contact a 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

TrueAC Power Supply			
Part Number	**Input Power Rating**	**Output Voltage**	**Output Current**
4010442	120 VAC, 20 VA, 50/60 Hz	7.0 kVAC	3.0 mA Maximum 5.0 mA Short Circuit
4010443	230 VAC, 20 VA, 50/60 Hz	7.0 kVAC	3.0 mA Maximum 5.0 mA Short Circuit
4010440	120 VAC, 20 VA, 50/60 Hz	5.0 kVAC	3.0 mA Maximum 5.0 mA Short Circuit
4010441	230VAC, 20 VA, 50/60 Hz	5.0 kVAC	3.0 mA Maximum 5.0 mA Short Circuit
Dimensions	5.5”L x 3.9”W x 4.5”H		
Weight	6.0 lbs		
Color	Blue		
HV Connector	Two screw-in type connectors		

TrueAC X 4 Power Supply			
Part Number	**Input Power Rating**	**Output Voltage**	**Output Current**
4010604	120 VAC, 20 VA, 50/60 Hz	7.0 kVAC	3.0 mA Maximum 5.0 mA Short Circuit
4010605	230 VAC, 20 VA, 50/60 Hz	7.0 kVAC	3.0 mA Maximum 5.0 mA Short Circuit
4010883	120 VAC, 20 VA, 50/60 Hz	5.0 kVAC	3.0 mA Maximum 5.0 mA Short Circuit
4010884	230 VAC, 20 VA, 50/60 Hz	5.0 kVAC	3.0 mA Maximum 5.0 mA Short Circuit
Dimensions	8.6”L x 4.9”W x 4.5”H		
Weight	7.2 lbs		
Color	Blue		
HV Connector	4 screw-in type connectors (SLCC)		

4. INSTALLATION

TrueAC and TrueACX4

CAUTION – Electrical Shock Hazard - Unplug line cord of power supply before installation or servicing of neutralizing bar. Ground connection of the power supply is required before energizing.

CAUTION – Fire Hazard - Do not install or operate the Blue Bar in close proximity to any flammable liquids or vapors.

1. Determine the location for mounting the neutralizing bar and power supply. Refer to Figure 1 for TrueAC cable connections. Some cable assemblies have SLCC high voltage connector preinstalled.
2. DO NOT PLUG LINE CORD OF POWER SUPPLY INTO THE INPUT POWER RECEPTACLE UNTIL ALL INSTALLATION IS COMPLETED.
3. Drill four 9/32" diameter clearance holes for mounting the power supply using ¼-20 hardware. Refer to Figure 2 for dimensions between clearance holes.
4. Ensure the mounting location of the power supply will allow the high voltage cables to be positioned away from moving parts and sharp edges then mount power supply
5. Connect a ground wire to the ground terminal of the power supply. (See Figure 3 & 4 for ground terminal location)
6. Mount the neutralizing bar using the hardware provided with the shipment. Refer to R50 and R51 Blue Bar installation instructions in Section 4 for details.
7. Proceed to section on attaching high voltage cable.
8. Plug line cord into receptacle to energize power supply.

SLCC High Voltage Connector Assembly

The equipment you have ordered may be supplied with a spring-loaded connector installed. If so, keep these instructions for use when ordering a replacement connector. If the spring-loaded connector is not installed, follow the instructions below, using Figure 1 as a guide.

1. Slide knurled plug (knurled end first) over the end of the cable that will be inserted into the power supply.
2. Slide connector body (end without setscrew hole first) over cable.
3. Slide high voltage connector (small metal piece with threaded hole for setscrew) over gold tip at end of connector wire. Line up setscrew hole in connector body with hole in high voltage connector.
4. Insert setscrew in connector through the hole in the connector body and tighten until setscrew is just even with or slightly below the surface of the connector body.

5. Pull firmly to be sure high voltage connector is tight on conductor wire.
6. Turn contact spring (end with close turns) clockwise, by hand, onto high voltage connector until spring butts against connector body.

Attaching High Voltage Cable TrueAC Power Supply

1. Switch off power supply and unplug line cord from receptacle.
2. Insert SLCC high voltage connector in female port on the power supply and finger-tighten (see Figures 3 & 4).
3. For TrueAC, connect shield wire to shield terminal of power supply (see Figures 3 and 4)

Removing High Voltage cable from TrueAC Power Supplies

1. Switch off power supply and unplug line cord from receptacle.
2. For TrueAC, remove shield wire of cable assembly from shield terminal (see Figures 3 & 4).
3. Carefully finger-loosen SLCC connector and remove cable from power supply.

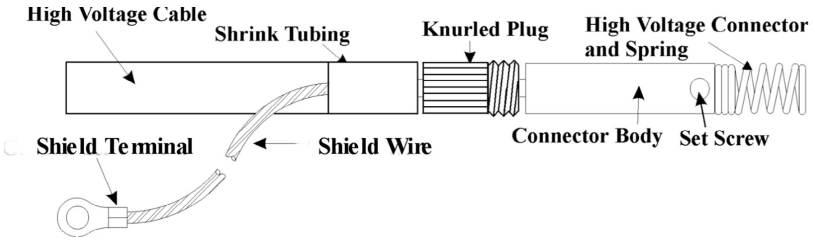


Figure 1

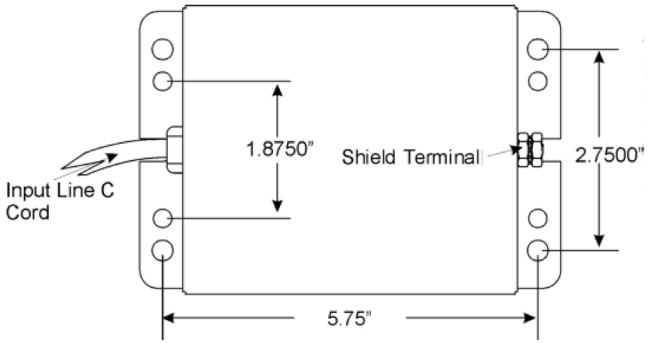


Figure 2

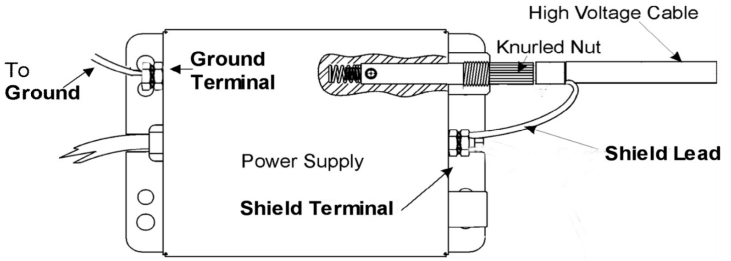
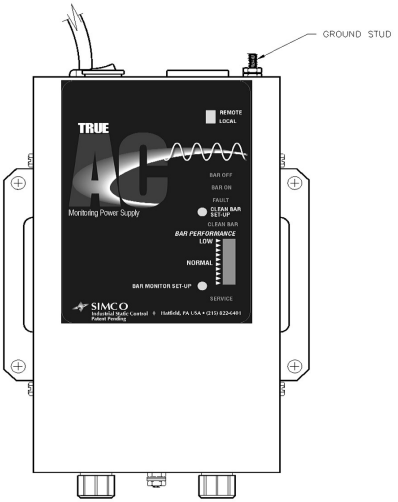


Figure 3



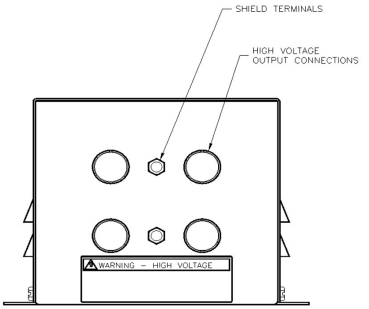


Figure 4

5. OPERATION

True AC Function Indicators

1. BAR ON – High voltage is present on the static bar
2. BAR OFF – No high voltage on the static bar or cable
3. CLEAN BAR – Tells the machine operator when it is time to clean a dirty static bar. Also has a remote dry contact output.
4. FAULT – The Arc Detection portion of the circuit turns the power supply off if the high voltage is shorted to earth ground to alarm that there is a system failure and protect the transformer. Also has a remote dry contact output.
5. SERVICE – Illuminates when an insulator covers the static bar emitter pins and ion production has stopped. Also has a remote dry contact output.
6. BAR PERFORMANCE – Bar graph displaying the ionization output performance of the static bar.

Calibration Instructions for the TrueAC Monitoring Power Supply

Calibrating the TrueAC Monitoring Power Supply is a simple process using the two calibration pots located on the face of the power supply. The "Clean Bar" light is preset at the factory to illuminate when the ionization output from the static bar is at approximately 35% of maximum output potential, however, it can also be recalibrated in the field to either increase or decrease the sensitivity of the monitoring system, depending on the users requirement. Normally the monitor will require calibration only at the initial set-up. Recalibration may be required several days later as a result of changes that may occur during the burn-in period experienced by new bars.

Initial Set-up

Since the clean bar light is pre-set at the factory, the "Bar Monitor Set-Up" is the only calibration requirement. Calibrate the light as follows:

1. Mount the static bar(s) in its permanent location directed toward a web or a roll of material. The production line should be stopped during the calibration procedure.
2. Connect the bar(s) to the power supply. Attach the pigtail lead at the connector end of the static bar cable to the metal stud located above the female connector ports on the power supply.

NOTE – Please note that this connection point is part of the monitoring circuitry, and IS NOT a ground connection. Any ground connection at this point will cause the SERVICE circuit to activate.

3. Turn on the power. The BAR ON and SERVICE lights will illuminate, and there will be no lights illuminated on the "Bar Performance" grid display.

4. Locate the pot marked “Bar Monitor Set-Up” that is located above the service light.
5. Use a very thin bladed screwdriver to adjust the pot, either left or right, until the light on the “Bar Performance” grid illuminates. Continue to turn the pot until the SERVICE light extinguishes, then continue for 1/8 turn.
6. The calibration is complete.

Calibrate the Clean Bar Set-up

The “Clean Bar” light is preset at the factory, however, it can be recalibrated in the field to change the sensitivity of the monitoring system. Calibrate the display as follows:

1. Mount the static bar(s) in its permanent location directed toward a web or a roll of material. The production line should be stopped during the calibration procedure.
2. Connect the bar(s) to the power supply. Attach the ground lead at the connector end of the static bar cable to the metal stud located above the female connector ports on the power supply.

NOTE – Please note that this connection point is part of the monitoring circuitry, and IS NOT a ground connection. Any ground connection at this point will cause the fault circuit to activate.

3. Turn on the power.
4. Locate the pot marked “Bar Monitor Set-Up”, just above the SERVICE light.
5. Use a very thin bladed screwdriver to adjust the pot, either left or right, to move the “Bar Performance” indicator light to the desired level on the performance grid where the clean bar light would activate.
6. Once the desired alarm level has been reached, move to the “Clean Bar Set-Up” pot located above the clean bar light. Slowly turn the pot, left or right, until the “Clean Bar” light illuminates.
7. Move back to the “Bar Monitor Set-Up” pot, slowly turn the pot to move the “Bar Performance” indicator light down the grid display until it approaches the base of the normal range on the grid and the SERVICE light illuminates. At this point, slowly turn the pot in the opposite direction until the SERVICE light extinguishes, then continue for 1/8 turn.
8. The calibration is now completed.

Other Display Lights on the True AC Monitoring Power Supply

Local/Remote Switch – Set the switch in local mode unless connecting a voltage signal from 12 to 24V, 1A max. for remote on/off operation to the remote connections located adjacent to the AC power switch. Contact Simco-Ion for instructions on how to connect for remote operation.

Bar Off – Will only illuminate when operating in remote mode and the power supply is remotely turned off.

Bar On – Will illuminate when there is AC line power to the power supply in either local or remote mode.

Fault – Indicates that there is a malfunction in the bar or power supply.

Clean Bar – Indicates that the static bar needs to be cleaned. The "Clean Bar" light on the Power Supply accompanying these instructions is set to illuminate when the bar efficiency falls to 40%. This set point is adjustable in the field, as described above.

Service – Will illuminate when either the ionization is terminated, or there is an electrical restriction that affects the high voltage to the static bar.

Cleaning instructions: Clean the face of the bar (the surface with emitter points) using a brush with stiff, non-metallic (e.g., nylon) bristles. This will often bring the bar's efficiency back to or near 100%. If it does not, there may be an accumulation of contamination on the sides or back of the bar. Vigorously clean the sides and back using a brush or cloth and isopropyl alcohol and/or a mild detergent like Dawn dish washing detergent. Do not re-energize the bar until it is dry.

Dry Contact Connections for Remote Operation

The True AC Remote connector is a 6-curcuit pluggable terminal block allowing the user to remotely control the ON/OFF functions and to monitor the CLEAN BAR, SERVICE and FAULT status through one of three relay contacts.

Due to UL safety spacing on the PCB, DO NOT EXCEED 24VDC on any of the remote connections.

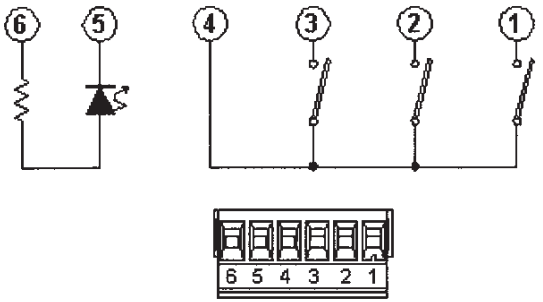


Figure 5 – Schematic Diagram

Pin 1: FAULT Signal - contact rating 24 VDC @ 1A (Max)
Pin 2: SERVICE Signal - contact rating 24 VDC @ 1A (Max)
Pin 3: CLEAN BAR Signal - contact rating 24 VDC @ 1A (Max)
Pin 4: RELAY COMMON - contact rating 24 VDC @ 1A (Max)
Pin 5: REMOTE ON/OFF Common - +12 to 24 VDC control signal
Pin 6: REMOTE ON/OFF Control - +12 to 24 VDC @ 15 mA

Pins 5 and 6 require a +12 to 24 VDC (Max) signal, which is optically isolated from the power supplies internal control circuitry. Connect the switched positive control signal to PIN 6 and the return for positive control signal to PIN 5. See Figures 6 and 7.

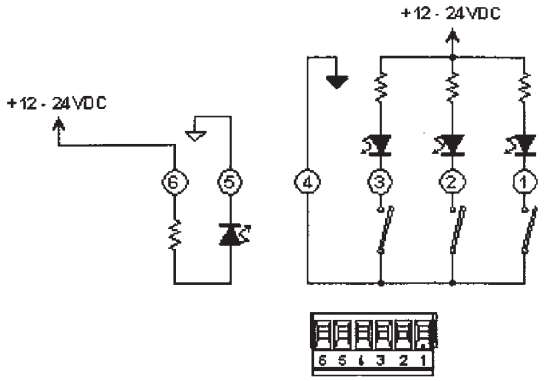


Figure 6 – Sink Mode Connection

If PIN 4 is connected to a common, then PINS 1, 2, 3 will be in sink mode.

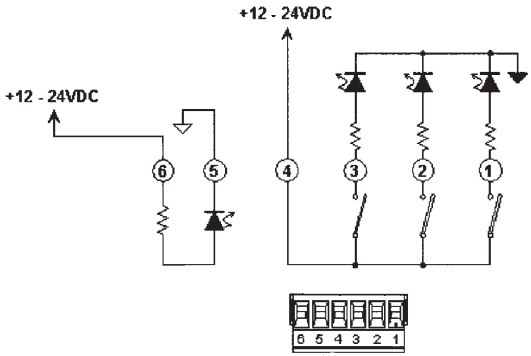


Figure 7 – Source Mode Connection

If PIN 4 is connected to a 24 VDC (Max) signal, then PINS 1, 2, 3 will be in source mode. Do not exceed 1 Amp per relay contact and 3 Amps total on the terminal of PIN 4.

6. TROUBLESHOOTING

Troubleshooting for TrueAC Power Supply

Operating Condition Solutions		
Condition	**Possible Cause**	**Solution**
No high voltage output	Position of Local/ Remote Switch	Make sure the Local/Remote switch is set in the appropriate mode for ON/OFF control
	No supply voltage	Check supply voltage and connection
	Correct supply voltage	Disconnect the bar and reboot power supply by turning main power switch OFF and then back ON. If supply reboots, replace the bar. If the power supply does not reboot, replace the power supply.

Indicator Light Solutions		
Condition	**Possible Cause**	**Solution**
Clean bar indicator extinguish during calibration	Bar is mounted too close to web, or ground	Follow bar mounting instructions for will not R50 for R51 Blue Bar
Clean bar indicator will not extinguish after bar is cleaned	Bar is not sufficiently clean	Re-clean bar
	Sensitivity setting of Clean Bar calibration	If new system, re-set calibration. If older system check condition of bar(s)
	Something is touching the bar	Check the bar mounting to make sure no ground path is contacting the bar
Fault indicator is ON, no output power from supply.	HV output short to ground	Disconnect bar, reboot supply by turning main power switch Off then back On, if power supply reboots, replace bar. If supply does not reboot replace power supply.
Service Indicator is On.	HV output short to bar sensor return	Disconnect bar and reboot supply, if supply reboots replace the bar.
	Short bar sensor return to ground	Make sure all bar connections comply with figures 3 & 4, and there are no ground connections to the Shield terminal. If all connections are correct, then replace the bar.
	HV transformer fails	Replace supply.
	Insulative coating on bar	Thoroughly clean the bar to remove any coatings that may be covering points, sidesof bar, or back of bar. If condition continues, replace the bar.

7. MAINTENANCE

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

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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