SIMCO ION™

An ITW Company

Conveyostat® In-Line Ionizer
For Pneumatic Conveyors

INSTALLATION AND OPERATING INSTRUCTIONS

TABLE OF CONTENTS

1. SAFETY WARNINGS

PLEASE READ THE INSTRUCTIONS COMPLETELY BEFORE STARTING THE INSTALLATION.

ALL INSTALLATION AND TROUBLESHOOTING OPERATIONS MUST BE PERFORMED BY QUALIFIED TECHNICAL PERSONNEL.

This instruction the manual uses symbols to identify dangerous situations as follows:

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

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

WARNING – Statements identified with **WARNING** indicate potential serious injury hazards.

NOTE – This equipment must be correctly installed and properly maintained. Adhere to the following notes for safe installation and operation:

1. Read instruction manual before installing or operating equipment.
2. Only qualified service personnel are to perform installation and repairs.
3. All equipment must be properly grounded, including the machine frame to which the equipment is mounted.
4. Turn off input power to unit before connecting or disconnecting other equipment.
5. Do not operate system in close proximity to flammable liquids.

CAUTION – Electrical Shock Hazard
Do not touch emitter pins when power supply is energized.

CAUTION – Electrical Shock Hazard
Disconnect input power to high voltage power supply before connecting or disconnecting static neutralizing bars or performing any maintenance to the system.

WARNING – Fire Hazard
Do not install or operate Conveyostat in close proximity to any flammable liquids or solvents.

2. DESCRIPTION

Simco-Ion's Conveyostat Systems are designed to provide in-line static elimination for neutralizing static charges on materials in pneumatic conveying systems. In-line ionization eliminates clogs caused by static charge buildup within the conveying system. Once the charges are neutralized, products flow freely and productivity increases.

Conveyostat's are typically mounted at the input to a cyclone or collection vessel so that trim or other conveyed materials are neutralized as they pass through the unit.

Features

- Ionization prevents pneumatic conveying systems from becoming jammed
- Dual-phase ion generation ensures high neutralization rates
- Stainless steel construction
- Available flangeless, flanged, or QF bead connection
- Available in standard and custom sizes

Receipt of Equipment

Carefully remove the equipment from the carton.

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 (215-822-6401).

Empty the carton to ensure that small parts are not discarded.

Return Shipments

Prior to returning goods, contact a Simco-Ion Customer Service representative (215-822-6401) 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

System Components	Ionizer housing tube and power supply
Enclosure	Stainless Steel
Lengths	Standard, 24", 36", 48" (other lengths available)
Diameters	Standard , 2-12" (larger diameters available)
HV Connection	BPS-C: IQ Power connector and IQ Power extension cable
Power Supply	Simco-Ion BPS-C or Dual Phase+ (legacy installations)

4. INSTALLATION

1. Locate the Conveyostat In-line Ionizer as close as possible to the inlet of receiver vessels (such as dropout boxes, cyclones, fabric filters, etc.). In these chambers, the speed of particles is lower, and the detrimental effects of static electricity can be easily observed as clogs and material sticking.
2. The Conveyostat must be installed in the line with the flow direction of the material being from the cable end side of the static bars thru to the dead-end side of the static bars.
3. See power supply manual for maximum loading characteristics.

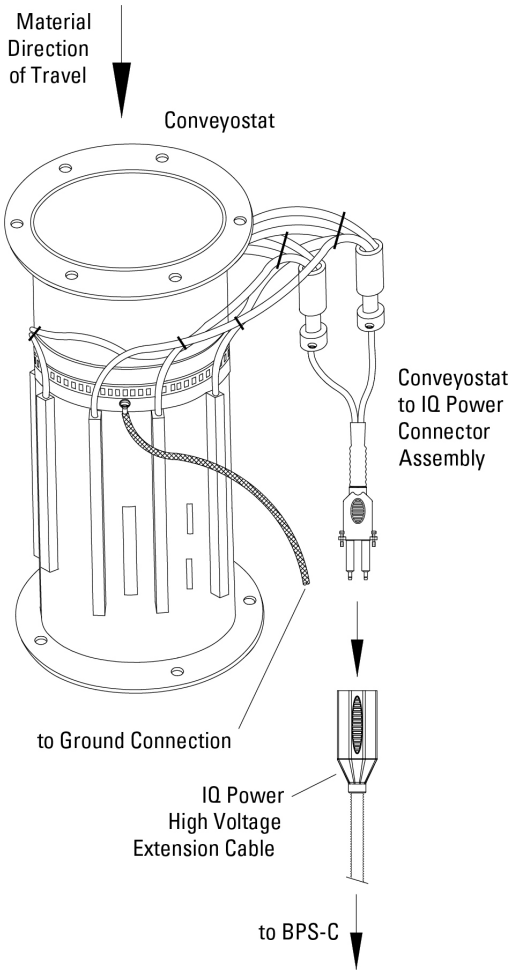

Figure 1. Conveyostat with BPS-C Power Supply

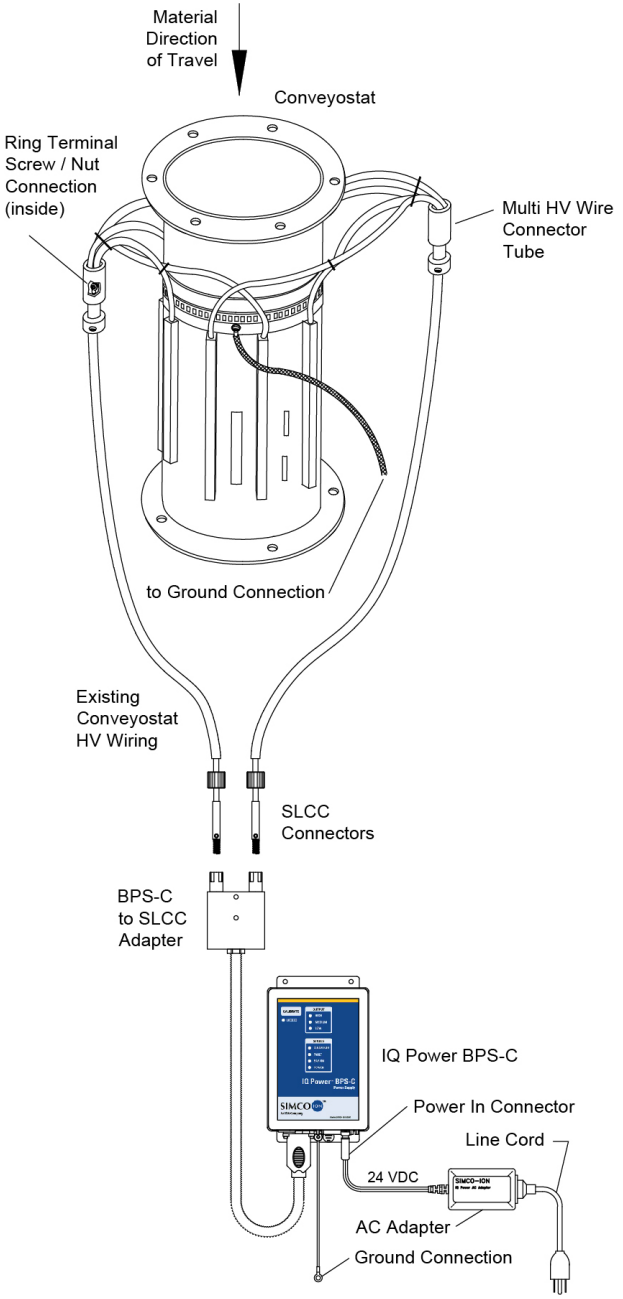

Figure 2. Conveyostat to BPS-C with AC Adapter Power Supply Retrofit

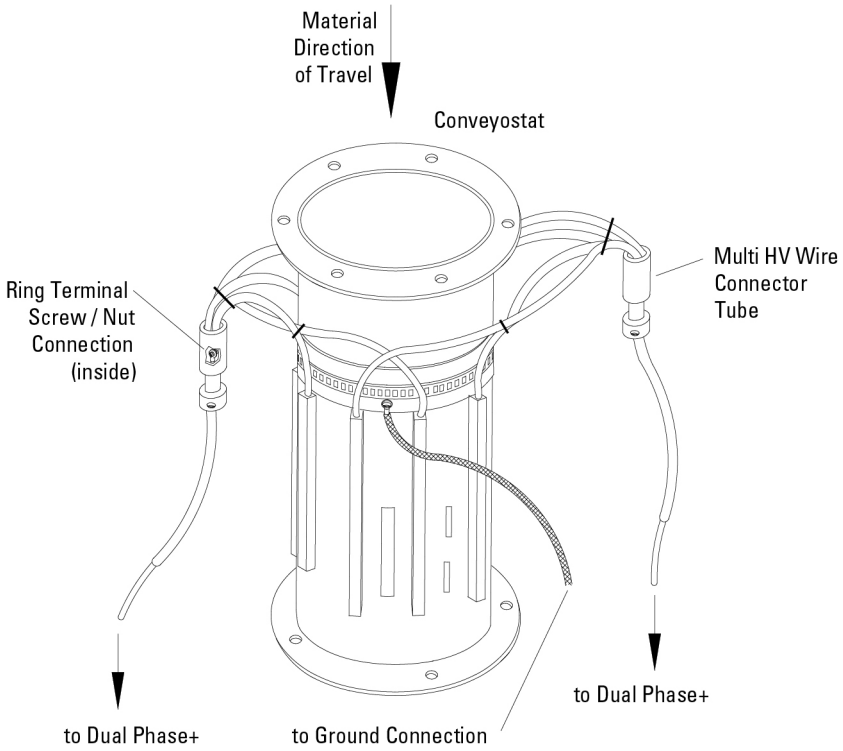

Figure 3. Conveyostat with Dual Phase+ Power Supply

CAUTION – Electrical Shock Hazard
Before placing the Conveyostat in operation, be sure that all grounds and connections have been made as described in the following section.

Ground Connections

The Conveyostat is provided with a ground braid assembly. The ground braid is typically terminated with ring terminals. Grounding is important to ensure safety and proper operation of the Conveyostat.

1. One end of the ground braid terminates at a ground stud on the Conveyostat.
2. Terminate the other end of the ground braid to the ground stud on the power supply or machine frame ground.
3. The Conveyostat and power supply must be grounded to machine frame ground. This connection may be made through the ground braid.

CAUTION – Electrical Shock Hazard
Disconnect input voltage to power supply while making high voltage connections.

High Voltage Connections

1. Connect Conveyostat to BPS-C power supply using an IQ Power Extension Cable. The Conveyostat must be equipped with a two-prong HV connector assembly. The connector assembly at the Conveyostat plugs into the receptacle end of the HV extension cable. Secure connection with (2) captive screws on connector, DO NOT over-tighten screws. HV extension cables may be chained together to a maximum of 100 feet per Conveyostat. The plug-end of HV extension cable plugs into HV1 or HV2 on the BPS-C. Secure connection with (2) captive screws on plug, DO NOT over-tighten screws. See BPS-C instruction manual.

NOTE – Failure to fully seat the high voltage connectors into the power supply connectors may result in permanent damage to the bar, cable, or power supply.

2. Retrofit Conveyostat to BPS-C power supply by disconnecting and removing the Dual Phase+ power supply. Prepare the existing HV wiring by installing spring loaded cable connectors (SLCC). Follow instructions included in the adapter kit to install the SLCC connectors. Attach the SLCC connectors to the BPS-C to SLCC Adapter. Plug adapter into HV1 or HV2 on the BPS-C. Secure connection with (2) captive screws on plug, DO NOT over-tighten screws. See BPS-C instruction manual.

NOTE – When retrofitting note that the BPS-C is designed to work with resistively coupled static eliminators. Conveyostat in-line ionizers with serial numbers beginning with "16" or greater have resistively coupled static bars. If the Conveyostat serial number begins with "15" or less, the static bars should be replaced.

3. Connect Conveyostat to Dual Phase+ power supply Dual Phase+ power supply using a HV Cable Assembly. HV Cable Assemblies are available in various lengths up to 100 feet. The HV cable assembly connects to the Conveyostat inside an insulated junction tube. There the HV cable ring terminals are connected with a screw / nut. Once connected, the multi HV wire connector tube is slid into place over the connection and secured with a nylon screw. The high voltage cables must be kept isolated from each other and from ground. When utilizing conduit, it must be

non-metallic and the HV cable from alternate phases cannot be combined in the same conduit. Failure to do so may result in poor performance, cable insulation failure, and/or power supply nuisance tripping. See Dual Phase+ instruction manual.

4. Route cables from Conveyostat to power supply. Keep cables clear of frames and machinery that could abrade and/or damage the cable.

NOTE – Failure to follow the above guidelines may result in poor system performance, exhibited by nuisance alarms, power supply tripping and/or cable insulation failure.

5. OPERATION

NOTE – Before operating equipment, ensure that units are properly grounded and that the Conveyostat has been properly installed.

To begin operating the equipment, simply apply input power to the Power Supply and switch power supply on. The Green Power light indicates power to the unit. In the case of the BPS-C a green Bar On light indicates the static bars are energized.

In the case of a Clean Bar/Warning or Fault light, see Troubleshooting section. See power supply instruction manual for details on power supply operation.

BPS-C Indicators/Operators

Power: Lights (green) to indicate power is on at the power supply and it is ready to operate.

Bar On: Lights (green) to indicate when static neutralizing is active.

Fault: Lights (red) to indicate faulty condition of static neutralizer, power supply or high voltage connections. Power will have to be turned off to clear the fault. When the fault is cleared and power is restored, the fault light will be extinguished.

Clean Bar: Lights (yellow) to indicate need to clean static bars. Clean Bar indicator may light with low ion output (dirt build-up on ion emitters) or high output current (conductive contamination on face of bar).

Output: The output indicators range Low, Medium, or High to indicate the system relative ion output. The output will normally be in the high range. Low output generally indicates the need to clean the static bar.

Locked: Lights to indicate calibration at the BPS-C is locked out. This occurs automatically when a Control Station is connected, where calibration is performed through the Control Station.

Calibrate: Is a momentary push-button switch located on the face label. Pressing the face label firmly on “Calibrate” initiates calibration sequence and sets relative nominal ion output for the system.

New installations will need to be calibrated for the Output indicators and the Clean Bar indicators to work properly.

See BPS-C instruction manual for more details.

Dual Phase+ Indicators/Operators

Power: Lights (green) to indicate power is on at the power supply and it is ready to operate.

Fault and Warning: Light (yellow and red) indicators on power supply. Loss of high voltage, or a short circuit within the attached static neutralizing device or its cables, will disable the Power Supply's high voltage output and cause the indicator to flash.

Reset: Push-button to reset a fault condition and extinguish the flashing indicator. First the cause of the fault must be remedied. Then press and hold the Reset button until normal operation is resumed.

See Dual Phase+ instruction manual for more details.

6. MAINTENANCE

NOTE – Only qualified service personnel are to perform maintenance tasks.

CAUTION – Electrical Shock Hazard
Turn off power supply before cleaning bar or performing any maintenance on the system.

Occasionally check to make certain that all ground and electrical connections are clean and secure. Periodically inspect all cables to ensure that there are no cuts, abrasions, or damage that can lead to operator shock or equipment damage.

The accumulation of contamination on the ionization emitter points and static bar surfaces will reduce neutralizing efficiency of the Conveyostat, therefore it is recommended that maintenance of the system be performed when the Clean Bar (BPS-C) or Warning (Dual Phase+) indicator on the display illuminates. Dirty environments may require more frequent cleaning. Maintenance should be performed by qualified service personnel only.

Inspecting and Cleaning the Static Bars

Periodically inspect the static bars for physical damage such as missing pins and cracked (or broken) housings. Such damage may occur from foreign particles traveling through the unit. Abrasive wear on the exposed surfaces of the static bar is to be expected in normal operations. Wear depends on the materials being conveyed.

A clean brush with nylon bristles should be used to keep the ionization emitter points of the static bar clean. Periodic use of the brush will prevent deposits from accumulating on the points. The emitter points must remain sharp for optimum operation.

NOTE – Do not scrape points with any hard or sharp object that may damage points.

1. Turn off power supply.
2. Remove dirt particles deposited on the static bars with a dry, stiff nylon bristle brush.
3. Blow off the static bars with clean, dry compressed air.

4. Remove resistant coatings deposited on static bars by wiping with isopropyl alcohol or mineral spirits applied to a clean cloth. Apply isopropyl alcohol or mineral spirits to a stiff nylon bristle brush and thoroughly scrub the ionization emitter channels of the bar.
5. Blow static bars dry with clean, dry compressed air and ensure the bars are completely dry before re-applying power to the bar.

NOTE – Do not soak static bar or related components in alcohol or mineral spirits. Do not use harsh solvents such as lacquer thinner, naphtha or acetone.

WARNING – Fire Hazard
Do not turn on power supply with any trace of alcohol or mineral spirits on the equipment. Allow all alcohol or mineral spirits to evaporate.

Calibration (BPS-C only)

NOTE – Calibration should be performed when the system is first installed and may be performed after the static bar has been cleaned and the system verified as operating correctly.

If the system is new, perform an initial calibration. The initial calibration sets relative nominal ion output for the system. The calibration should only be performed on systems that are new or just cleaned and known to be in proper working order.

During calibration the Conveyostat must be clear of material, i.e. no material is to be flowing through the Conveyostat. If material is flowing in the Conveyostat (e.g., the machine is in operation) the calibration may be faulty.

The system should be "on" and in the operating mode (not in start-up mode). On units NOT connected to a Control Station: press the face label on power supply firmly on the word "Calibrate". This will initiate the calibration sequence and set relative nominal ion output for the system. On units connected to a Control station, tap on the device icon, neutralizer tab. The Device Calibrate button may be found on page 2. Tapping on Device Calibration initiates the calibration sequence.

During calibration, the system output will be cycled. At completion of calibration the indicator lights will flicker. The indicated ion output will be high. The calibration sequence takes less than one minute.

The calibration data is stored in non-volatile memory and used on subsequent power ups.

7. TROUBLESHOOTING

NOTE – Only qualified service personnel are to perform troubleshooting tasks.

CAUTION – Electrical Shock Hazard
Do not troubleshoot high voltage components with power supply energized.

Disconnect input power or switch power off before troubleshooting

Conveyostat with BPS-C

PROBLEM	CAUSE	SOLUTION
Power indicator NOT illuminated	Power not on at power supply	Turn on Power switch on end of power supply case
	Poor electrical connections	Check input power connections, both 24 VDC and line voltage; check modular cable if used with a Control Station
	Defective AC adapter	Replace AC adapter
	Blown device fuse in Control Station	Try another modular connector on Control Station
Clean Bar indicator illuminated	Process material fouling static bar ion emitters	Remove process material from static bar
	Dirt build-up on ion emitters or conductive contamination on face of bar	Clean ion emitters and static bar See Maintenance section for details
Bar ON indicator NOT illuminated	No static bar connected	Install static bar and connect to power supply
	High voltage connector is not connected	Turn off power, reconnect high voltage cable and secure plug with captive screws
	High voltage connector missing bar type sense pin at BPS-C	Replace high voltage connector plug at BPS-C
	Bar power off at Control Station	Turn bar power on through device page on Control Station
Fault indicator illuminated	Static bar shorted to grounded metal	Clear debris shorting static bar to grounded metal
	Damage to high voltage connector	Replace high voltage connector
	Damage to high voltage cable	Replace defective cable
	High voltage module inside power supply faulty	Replace high voltage module
Locked indicator NOT illuminated	Power supply operating stand-alone	Locked indicator only illuminates if Control Station connected
	Poor electrical connection	Check connections of modular cable at power supply and Control Station

NOTE – Device power input is protected by an internal fuse identified as F1 that is replaceable only by qualified service personnel. Use cartridge-type slow blow 0.25 x 1.25" fuses rated 250V, 5A only (such as Little Fuse 0313005.HXP or equivalent).

Conveyostat with Dual Phase+

PROBLEM	CAUSE	SOLUTION
Power indicator NOT illuminated	Power not on at power supply	Turn on Power switch on power supply
	Poor electrical connections	Check input power connections and voltage
Warning indicator illuminated	Process material fouling static bar ion emitters	Remove process material from static bar
	Dirt build-up on ion emitters or conductive contamination on face of bar	Clean ion emitters and static bar. See Maintenance section for details
Fault indicator illuminated	Static bar shorted to grounded metal	Clear debris shorting static bar to grounded metal
	Damage to high voltage connector	Replace high voltage connector
	Damage to high voltage cable	Replace defective cable
	High voltage transformer inside power supply faulty	Replace high voltage transformer

8. PARTS AND ACCESSORIES

Part Description	Part Number
Connector Assembly, Conveyostat to IQ Power	4110893
Adapter Kit, BPS-C to SLCC (for retrofitting legacy systems)	5052096
IQ Power Extension HV Cable (for use with BPS-C) 10 foot [3.05 meter] 30 foot [9.14 meter] 50 foot [15.24 meter]	 4017051 4017052 4017053
Ground Cable (braid) 10 foot [3.05 meter]	4104236
Multi HV Wire Connector Tube with Nylon Screw	4100442
Static Bar Cleaning Brush	4670204

9. WARRANTY AND SERVICE

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 which 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 (RMA). 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, connection to improper line voltage, or has been serviced by 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.

Information in this publication supersedes that in all previous published material. Specifications are subject to change without notice.

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