



An ITW Company

IQ Power™ Fantom HL Blower for Hazardous Locations

INSTALLATION AND OPERATING INSTRUCTIONS

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1. SAFETY WARNINGS

PLEASE READ INSTRUCTIONS COMPLETELY BEFORE STARTING INSTALLATION.

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

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



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



CAUTION – Statements identified with 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 use standard Ethernet cables with IQ Power Systems.



NOTE – Do not attempt to operate at voltages other than those specified.



NOTE – Do not allow dust, dirt or debris to block or obstruct air flow inlets or outlets.



WARNING – Electrical Shock Hazard

Electrical installation and repairs must be performed by a skilled electrical engineer according to the applicable national and local regulations. The equipment must be properly grounded. Grounding is required to ensure safe and proper operation and to prevent electrical shocks upon contact.

2. DESCRIPTION

Simco-Ion's IQ Power Fantom HL blower is a highly reliable, focused ionizing air blower designed for static elimination in many industrial applications including hazardous locations. It is ETL approved for use in Class I, Division 1 and 2, Group D hazardous locations. Its high-power fan covers the target area with balanced ionization for rapid static neutralization. The output of the blower can be controlled using the damper blades located over the blower intake. The Fantom HL blower is a two-part system that includes the blower with the IQ Power HL static neutralizing bar and the IQ Power HL or HLC power supplies. When coupled with the IQ Power Control Station, detailed monitoring and communications are available. In addition to the Control Station, when used with the HL Sensor, closed-loop feedback is available for optimal ion output and ion balance control. Cables for interconnection with a Control Station are available by calling Simco-Ion customer service (800) 203-3419 (refer to Section 8, Parts and Accessories). Service and maintenance are simplified with the IQ Power Fantom HL blower. A modular design makes for easy servicing. The outward facing static neutralizing bar makes cleaning and maintenance easy. The removable air filter on the side of the blower can easily be swapped out when the filter has become too dirty.

3. SPECIFICATIONS

Blower			
Input	115 VAC, 60 Hz, 4.4A (14A during startup)		
Operating Temperature	32-104°F (0-40°C)		
Operating Humidity	70% RH max, non-condensing (dewing) permissible		
Air Volume	285 cfm [8m ³ /min] max		
Air Filter	5.8" [147 mm] diameter polyurethane foam 25 ppi		
Air Speed	1200 fpm @ 4' [6 m/s @ 1.2m] on centerline (fan speed high)		
Noise Level	68 dB @ 2' [0.6 m] (fan speed high)		
Typical Discharge Time (1000V to 100V)	Distance	Positive (+) Decay	Negative (-) Decay
	1 ft. [0.3m]	0.5 sec	0.5 sec
	2 ft. [0.6m]	1.0 sec	1.0 sec
	3 ft. [0.9m]	1.5 sec	1.8 sec
	4 ft. [1.2m]	2.0 sec	2.5 sec
	5 ft. [1.5m]	3.0 sec	4.0 sec
	6 ft. [1.8m]	4.0 sec	5.2 sec
	8 ft. [2.4m]	6.5 sec	8.2 sec
	10 ft. [3.0m]	9.0 sec	12.5 sec
Enclosure	Steel, blue epoxy powder coated		
Connection	½" NPT male thread for metal conduit		
Dimensions	18.25"L x 21.30"W x 7.50"H [437 x 541 x 191 mm]		
Weight	27 lb [12.25 kg]		
Bar			
Operating Voltage	±7 kV from IQ Power HL/HLC Power supply		
Enclosure	Glass-fiber-reinforced polyester		
Connection	½" NPT male thread at end of bar for metal conduit		
Dimensions	21.30"L x 1.00"W x 1.93"H [541 x 26 x 49 mm]		

4. INSTALLATION

Position and Mounting



CAUTION – The installation, operation and maintenance of equipment for use in hazardous locations shall be performed by qualified personnel.

Refer to the following publications for guidelines:

- ANSI/NFPA70: National Electric Code, Hazardous (Classified) Locations – Article 500, and Class 2 locations – Article 501.
- NFPA77: Static Electricity
- NFPA 497M: Classifications of Gases, Vapors and Dusts for Electrical Equipment in Hazardous (Classified) Locations.

Available from: National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02169-7471

For maximum effectiveness, follow the steps below.

Placement of the IQ Power Fantom HL Blower

1. Mount the blower so that its airflow is directed at the material to be neutralized.



CAUTION – **Spark Hazard.** Do not mount blower with motor shaft vertically. Only mount the blower with the shaft in a horizontal orientation.



2. The material to be neutralized should have a background of free air and not be in contact with another material. Static charges are difficult to neutralize between two surfaces that are in intimate contact.
3. Mount the blower at the problem site for materials that are stationary. Mount the blower just before the problem area for materials that are in motion.
4. Mount the blower as close as 1” to 2” or as far away as several feet from the materials to be neutralized.
5. If an object has deep cavities, it may be necessary to mount the blower close to the object so that ionized air reaches remote areas.
6. If an object is light in weight, mount the blower far enough away to prevent the object from being blown out of position. Final adjustment to air flow can be made with the damper blades.

Blower Motor Wiring

The Fantom HL blower requires 115 VAC 60 Hz. Connect the line cord as shown in Fig. 1.

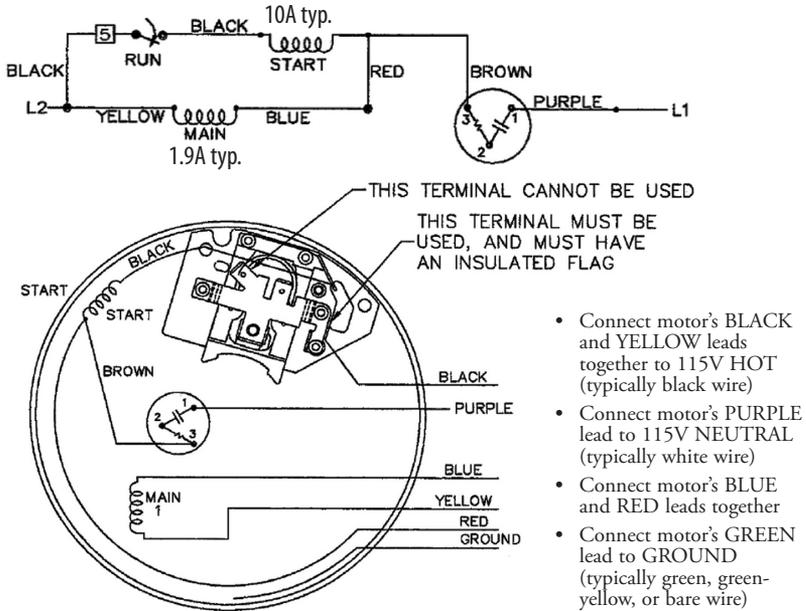


Figure 1. Motor Schematic and Wiring Diagram



NOTE – Do not attempt to operate at voltages other than those specified.



NOTE – Starting current for blower motor is approximately 3-5x the motor nameplate running current. The blower motor power source, including step-down transformer if used, must be capable of supplying starting current without excessive voltage drop for proper blower motor operation. If available starting current is insufficient, blower motor will operate continuously at greatly reduced RPM, drawing excessive current and overheating. This may result in damage to the blower motor.



WARNING – Electrical Shock Hazard

Electrical installation and repairs must be performed by a skilled electrical engineer according to the applicable national and local regulations. The equipment must be properly grounded. Grounding is required to ensure safe and proper operation and to prevent electrical shocks upon contact.



WARNING – All regulatory listings and approvals do not apply when the motor is operated on VFD (Variable Frequency Drive) power.

Equipment Grounding Requirements



CAUTION – Power supply enclosures, blower motor, and conduit systems must be grounded for safe operation.

1. The HLC power supply enclosure must be grounded for safe operation. The HL power supply must be grounded by using the ground lug on the mounting flange of the unit. The Control Station (if used) is grounded through the AC power cord. Proper grounding can be achieved by connecting the appropriate ground terminal on the power supply to an appropriate ground source, such as exposed bare metal on a machine frame, or through a properly grounded AC outlet.
2. The blower motor is grounded by means of the ground lead coming from the motor. The ground lead should be run through the conduit and connected to an appropriate ground terminal.
3. Ground the conduit to the machine frame or some other source of earth ground.

Conduit Requirements



NOTE – It is the customer's responsibility to provide approved conduit material and install the conduit in accordance with the National Electrical Code and any state, province and local regulations.

1. All conduit fittings must be approved for use in Class I, Division 1 and 2, Group D hazardous locations.
2. The IQ Power HL bar's high voltage cable must be installed in rigid conduit to its threaded fitting.
3. The primary wiring for the blower motor must be installed in rigid conduit.
4. All unused openings located on the IQ Power HLC enclosure must remain plugged. Do not remove plugs in openings that will not be used during the installation and use of the equipment.
5. Conduit must be sealed within 18 inches of the power supply enclosure for the IQ Power HLC or outside the hazardous area for the IQ Power HL. Approved conduit seal fitting, sealing cement and packing fiber are supplied by Simco-Ion.

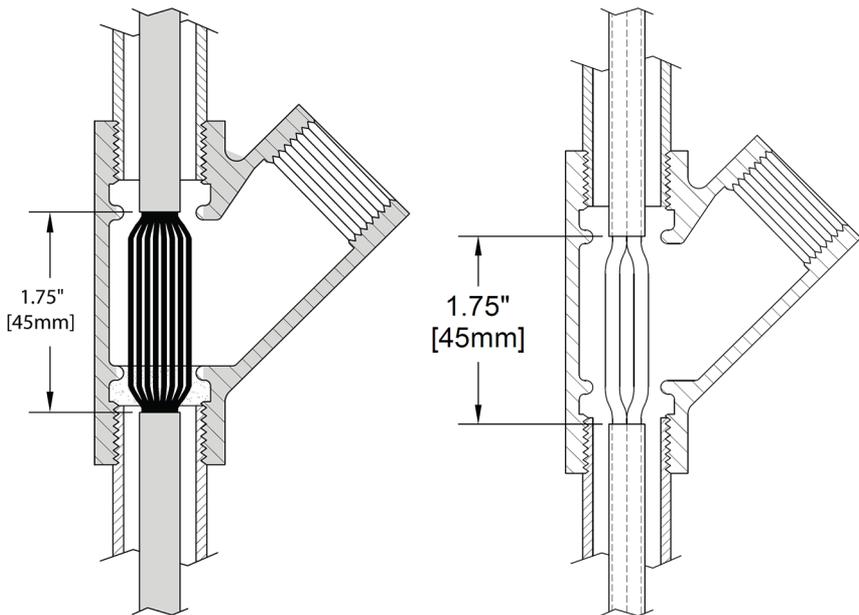


Figure 2. Conduit Seal on 8 Conductor Modular and HV Cables

System Wiring

Termination of HV Cable

Connect static bar by cutting high voltage cable to length, terminating leads, and connecting to power supply: (see Figure 3)

1. Cut HV cable to length, leaving an extra $3\frac{1}{4}$ " for connector.
2. Strip black plastic jacket back $2\frac{1}{2}$ ", being careful not to nick insulation of HV wires. (Practice stripping jacket on waste length of HV cable.)
3. Strip insulation of HV wires back 1", being careful not to nick conductor of HV wire.
4. Straighten conductors and insert into HV connector until conductor protrudes out from the tip of connector.
5. Solder conductor to tip of connector by applying solder to exposed conductor. Ensure that the solder does not overflow and fill neck area of tip.
6. Trim off excess conductor protruding from tip of connector. If using the HLC power supply, the HV cable is now ready to use. If using the HL power supply, continue to step 7.

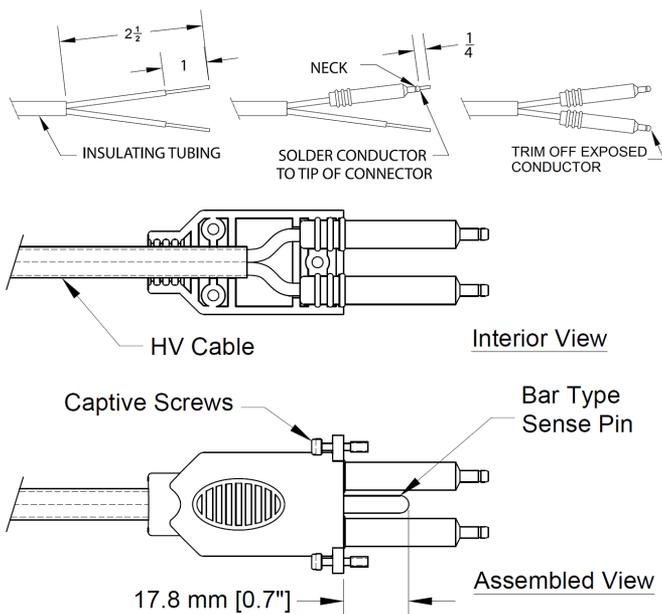


Figure 3. HL/HLC Power Supply High Voltage Cable Termination

7. Place HV Connectors into HV plug bottom. The black plastic jacket should be fully engaged in strain relief section of HV plug.
8. Install HV plug top onto bottom making sure plug comes together properly with no binding or gapping. Hold together firmly.
9. Insert nylon screws through holes in plug bottom and tighten to secure plug together (do not over tighten screws).
10. Plug in high voltage connector on static bar to HV1 or HV2 on power supply. Secure high voltage connector with the (2) captive screws on the sides of connector. Do not over-tighten.



NOTE – Conduit seals must be properly installed to prevent the propagation of vapors and flames through conduit runs (see Figure 2). Outer (black) jacket of HV cables must be removed and (white) insulated wires separated) before filling conduit seals with cement. Use care not to nick or cut insulation on HV wires.



CAUTION – Electrical Shock Hazard

Do not connect static neutralizing bar with Power Supply energized. Disconnect input power or switch power off before connecting static bar.



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

Connect AC Adapter (AC adapter not required if power supply is connected to a Control Station)

Make sure “POWER” switch on power supply is in “OFF” (0) position. Route low voltage wire clear of moving machine parts and protect it from abrasion. Secure using nylon wire ties (not supplied). Do not over tighten. Insert barrel connector into “POWER IN” connector on power supply. Hand tighten barrel connector nut to secure.

Connect line voltage to input side of AC adapter. The AC adapter is a universal input type that accepts line voltage from 100 to 240 VAC 50/60 Hz. The AC adapter line voltage connector accepts a line cord with an IEC 320 connector (supplied). The line cord also provides electrical ground to the AC adapter. Check electrical ground integrity in line voltage receptacle used for AC adapter. This ground must not be defeated.

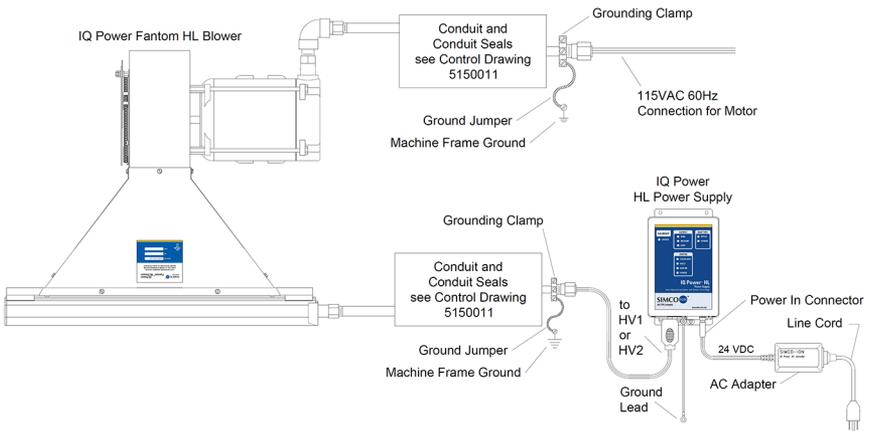


Figure 5. IQ Power Connections (Fantom HL to HL Power Supply)

Connect Power Supply Alarm Output (if used)

The IQ Power HL/HLC power supply “Alarm Output” is a standard DB25 pin connector. A maximum distance of 3 meters [10 feet] or less is recommended. The alarm output provides a variety of relay contact outputs that indicate the status of the power supply. The relay contacts are rated for a maximum of 1A at 30 VDC. The alarm output connector also provides a means of remote power in. (see Figure 6).

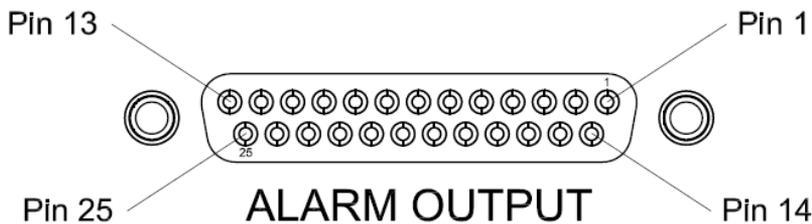


Figure 6. IQ Power HL/HLC Power Supply Alarm Output

Pin	Description	Pin	Description
1	Remote on/off optocoupler (-)	10	No connection
14	Remote on/off optocoupler (+)	6	No connection
2	Clean Bar Relay (common)*	19	No connection
3	Clean Bar Relay (normally closed)*	11	Power Relay (common)*
16	Clean Bar Relay (normally open)*	7	Power Relay (normally closed)*
8	Fault Relay (common)*	20	Power Relay (normally open)*
4	Fault Relay (normally closed)*	12	Power in (ground)**
17	Fault Relay (normally open)*	24	Power in (ground)**
9	Bar On Relay (common)*	13	Power in (+24 VDC)**
5	Bar On Relay (normally closed)*	25	Power in (+24 VDC)**
18	Bar On Relay (normally open)*		
*30V 1A Rating on contacts.			
**1.6A Rating, Connect pins 12 & 24 in parallel and 13 & 25 in parallel.			

Remote On/Off Control (if used)

The “Alarm Output” connector also provides for remote on/off control of the Power Supply. Remote on/off control is configured with a jumper on a pin header on the main Alarm Output circuit board. The default configuration is with remote control disabled. The remote control can be configured “normally off ” or “normally on ” by the jumper setting (see Figure 8). To access the jumpers the cover will have to be removed from the HL/HLC Power Supply. Disconnect all input power, then remove the six screws securing the cover and slowly and carefully remove the cover.

On the HL power supply, there is a ribbon cable connecting the face label on cover to the main circuit board. Use care not to disconnect this cable. If cable becomes disconnected, lift the latches on sides of ribbon cable connector, insert ribbon cable fully into connector and press latches back down.

Reposition jumper to enable remote control either “normally on” or “normally off”, as desired (see Figure 8). Then replace cover and secure with six screws.

When operating a Power Supply using the remote control circuit, power may be applied through the “Alarm Output” connector or the “Power In” connector on end panel. If the “Power In” connector on end panel is used, the “Power” switch must be set to ON (1) position.

Remote control is established by applying 24 VDC to the “Alarm Output” connector pins as specified in Figure 8. User-applied 24 VDC drives a low current optoisolator on the main circuit board, turning Power Supply on or off, depending on configuration of jumper J3.

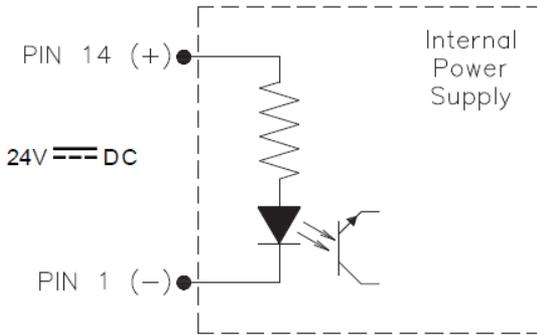


Figure 7. Remote Control Optocoupler Schematic

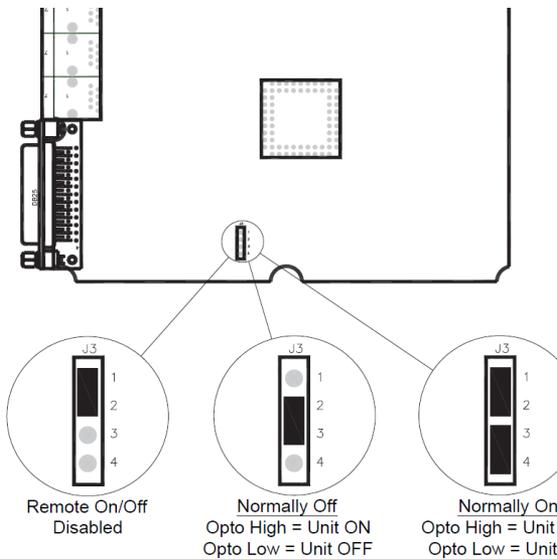


Figure 8. Jumper Position at J3 for Remote Control Operation

Connect User Supplied Power (if used)

In cases where the user does not want to use the AC adapter but wants to supply 24 VDC power to the IQ Power HL/HLC Power Supply, user supplied 24 VDC power may be applied two ways.

The “Power In” connector on end panel of IQ Power HL power supply may be used to supply power to the system. This connector requires the use of a Switchcraft 760K barrel type power plug. The plug should be wired +24 VDC to center and common (ground) to outer barrel. The common must be bonded to electrical ground. Wired in this fashion, the “Power” switch on end panel of HL power supply is in-circuit.

Alternatively, the “Alarm Output” connector on the end panel of IQ Power HL/HLC power supply may be used to supply power to the system. This connector requires the use of a standard DB25 connector. The connector should be wired:

- +24 VDC to pins 13 & 25
- Common (ground) to pins 12 & 24

To ensure current carrying capacity, two pins are used for each connection. The common must be bonded to ground. Wired in this fashion, the “Power” switch on end panel of the HL power supply is bypassed.

Power supplied in above fashion must have adequate current available to power all components on system (maximum 1.6A). Input power should be appropriately fused for safety purposes.

Connection to the IQ Power Control Station

Connection with a Control Station allows two-way digital communication with the IQ Power HL/HLC power supplies. The Control Station is able to display a variety of operating parameters and settings. The Control Station supplies 24 VDC power for the IQ Power HL/HLC power supplies. Cables must be IQ Power 8-conductor modular cables with RJ-45 connectors wired “crossover” (reference color: black, Figure 9). Three communication ports are available on the IQ Power HL/HLC, labeled COMM1 and COMM2. The COMM1 ports allow connection to an IQ Power Control Station. The COMM2 port on the HL power supply allows for the pairing of the HL Sensor Interface with HL Sensors for Closed-Loop Feedback operation. These ports are not interchangeable. Cables of various lengths are available, see Section 8, Parts and Accessories.

The modular cable plugs into one of the connectors labeled “POWER & COMM” on the Control Station and into either “PS COMM 1” connector on the HL/HLC power supply.

Route the modular cable clear of moving machine parts and protect it from abrasion. Secure using nylon wire ties (not supplied). Do not over-tighten wire tie.

If there is an excess of modular cable, if possible, cut modular cable to length and re-terminate using an RJ-45 connector installed with the same “polarization” as connector removed (note rib / wire color code to modular connector).

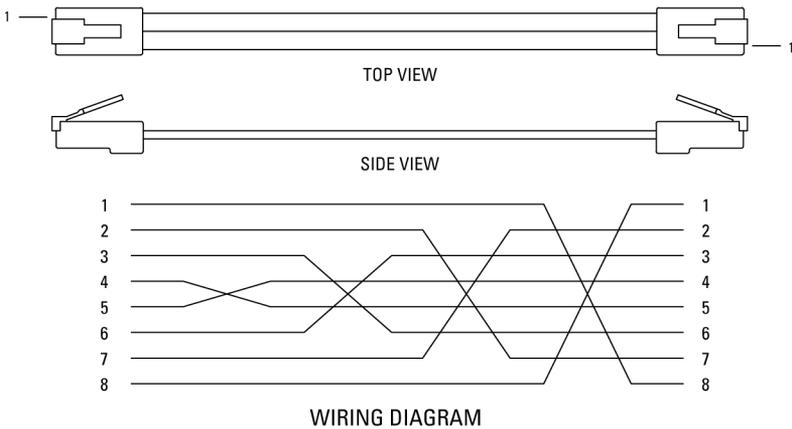


Figure 9. IQ Power Crossover Modular Cable (black)

The IQ Power HL/HLC will report to the Control Station using the Power Supply Number (address / device number). It will appear on the Control Station as a single device. If an IQ Power HL Sensor Interface is paired with the HL/HLC, it will appear as a tab on the device page.

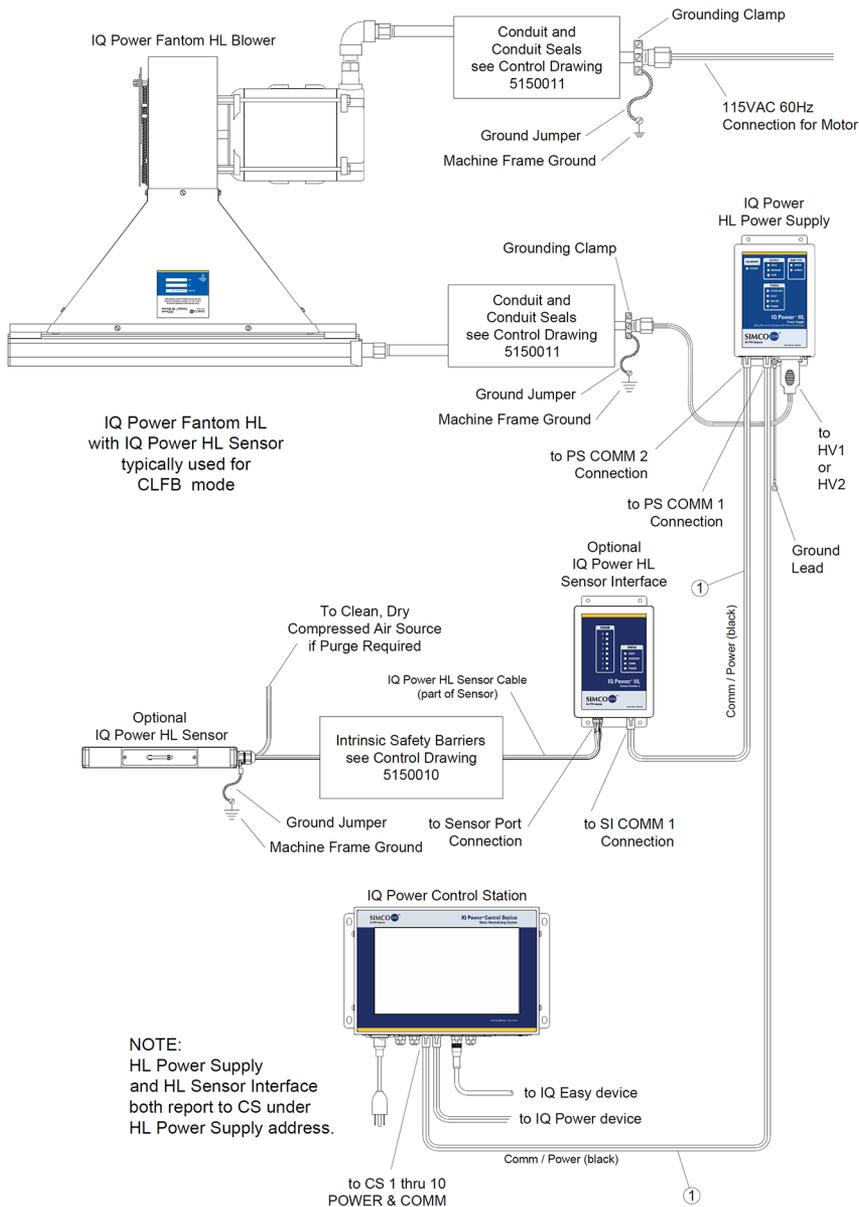
If multiple IQ Power supplies are connected to the Control Station, each power supply must have a unique Power Supply Number (address / device number). This is necessary to enable reliable digital communication.

The Control Station can be used to automatically address the power supplies. The default Power Supply Number for a new unit is “1”. Plug the first power supply into the Control Station and turn Control Station on. Allow the Control Station to boot-up and begin operation. Plug the second power supply into the Control Station. The Control Station will re-address the second power supply to “2”. Plug the third power supply into the Control Station. The Control Station will re-address the third power supply to “3”. Repeat this process until all power supplies are installed. Each power supply or device will be given a unique address (device number).

IQ Power HL/HLC power supplies may also be manually re-addressed through the Control Station.



NOTE – DO NOT USE standard Ethernet cables with IQ Power systems. Avoid permanent equipment damage by using only Simco-Ion modular cables. (Refer to Section 8, Parts and Accessories).



Comm / Data Cable Construction

① Crossover Wired  Reference color black

DO NOT USE standard Ethernet cables.

See Section 8 Parts and Accessories for available cable lengths and part numbers.

Figure 10. IQ Power Connections (Fantom HL to HL Power Supply and Control Station with Options)

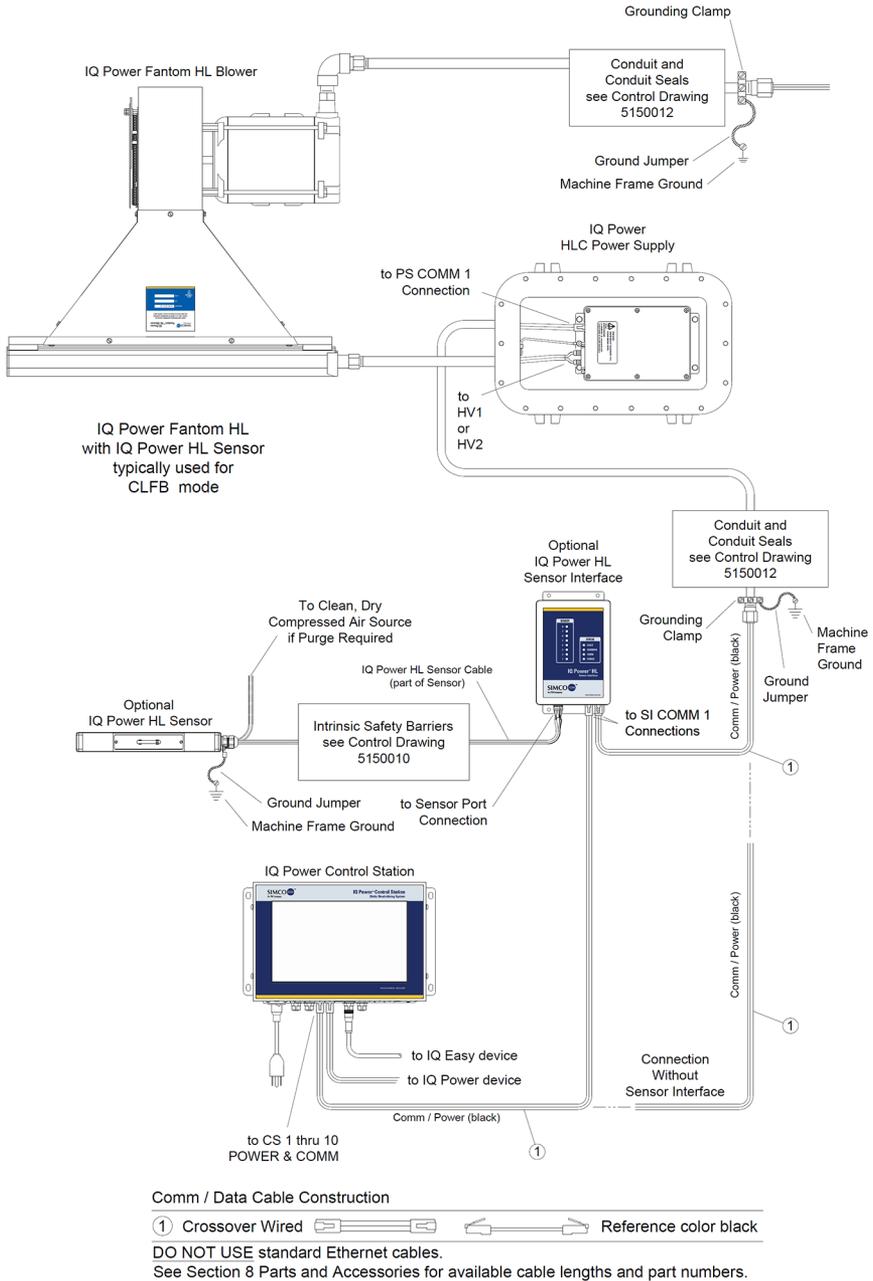


Figure 11. IQ Power Connections (Fantom HL to HLC Power Supply and Control Station with Options)

Connect the HL Sensor Interface (if used)

An IQ Power HL Sensor may be integrated into the IQ Power system to provide feedback on static eliminating performance and is used for the CLFB (Closed-Loop Feedback) static eliminating mode. Cables for the Sensor Interface must be IQ Power 8-conductor modular cables with RJ-45 connectors wired “crossover” (reference color: black, Figure 9).

When using the IQ Power HL power supply, the modular cable plugs into one of the connectors labeled “SI COMM 1” on the Sensor Interface and into the “PS COMM 2” connector on the HL power supply (see Figure 10). The second modular cable plugs into one of the “PS COMM 1” connectors on the power supply and into one of the connectors labeled “POWER & COMM” on the Control Station. The Sensor Interface will now automatically pair with the IQ Power HL power supply.

When using the IQ Power HLC power supply, the modular cable plugs into one of the connectors labeled “SI COMM 1” on the Sensor Interface and into the “PS COMM 1” connector on the HLC power supply. (see Figure 11). The second modular cable plugs into the other connector labeled “SI COMM 1” on Sensor Interface and into one of the connectors labeled “POWER & COMM” on the Control Station. The Sensor Interface must be manually addressed to the same address of the HLC power supply in order to be paired.

Route modular cable clear of moving machine parts and protect it from abrasion. Secure using nylon wire ties (not supplied). Do not over-tighten wire tie.

If there is an excess of modular cable, if possible, cut modular cable to length and re-terminate using an RJ-45 connector installed with the same “polarization” as connector removed (note rib / wire color code to modular connector).

See instructions included with IQ Power HL Sensor for sensor installation.

System Set-Up (without Control Station)

If the Fantom HL Blower is operating free standing (without connection to a Control Station) set up is simply adjusting the air flow on target and adjusting the blower output with the damper blades as necessary. Balance is factory calibrated.

System Set-Up (with Control Station)

A variety of information can be checked, and operating parameters set, for the IQ Power HL/HLC power supply through the IQ Power Control Station via the device page. Tap on device icon for the power supply and static bar to access these pages. A summary tab will appear offering important information. Tabs for the neutralizer and sensor (if installed) will also appear. Tapping on a neutralizer tab or sensor tab opens a page where operating parameters may be edited or selected. Typical parameters are listed below.

Device Name: A user editable name to identify specific device (14 character).

Bar Type: A fixed description for the type of bar connected to the HL power supply (speed).

Bar HV: Allows turning internal HV power supplies on / off.

Ion Output: Displays the ionization level, in percent, where Bar Calibration = 100% and the ionization level in terms of microamps for both positive and negative ionization.

Balance: A ratio of input power supplied to the high voltage power supplies that is related to ion balance. In Fixed, Auto-Tune and CLFB modes this is a display only and non-editable. The Balance may only be user adjusted in the Manual mode.

Operation Mode: A user selectable operating mode for the static bar (Manual, Fixed, Auto-Tune, CLFB).

- **Fixed** – 50/50 balance standard operation (default factory setting). Fixed provides standard operation, with output voltage regulation.
- **Auto-Tune** – This mode is not recommended for use with the Fantom HL blower.
- **CLFB (Closed-Loop Feedback)** – The best control of ion balance. The IQ Power HL Sensor connected to an HL power supply will automatically pair with that power supply for closed-loop control. The sensor must be positioned to detect static at the target of neutralization in order for CLFB to work. The sensor detects any charge imbalance at the target, or material to be neutralized, then transmits this information to the static neutralizing power supply. The power supply makes incremental changes to the balance setting until target charges are minimized.
- **Manual** – Allows manual control of the ion balance. Manual mode includes voltage regulation and current monitoring found in the standard mode, plus manual control of the ion balance ratio. This mode of operation would only be selected where the web, or material to be neutralized, exhibited extreme and consistent charging of one polarity.

Mounting Distance: A user entered value used only in the Auto-Tune mode. Not recommended for use with the Fantom HL blower.

Web Speed: A user entered value used only in the Auto-Tune mode. Not recommended for use with the Fantom HL blower.

Device Address: The Power Supply Number (address / device number) assigned to the HL power supply. The address may be edited, but duplicate address numbers are not permitted. The exception to this rule is static sensors. When a static Sensor Interface is connected to an HL power supply (PS COMM 2) the Sensor Interface will automatically be assigned the same address number as the HL power supply. On the Control Station, the data from Sensors connected to that Sensor Interface will appear as a tab under the HL power supply and the interface will automatically be paired with that HL power supply for CLFB operation.

If a Sensor Interface is not connected to an HL power supply, but is assigned the same address, it will be paired to that HL power supply.

Sensor Quantity: The number of sensors found on sensor interface.

Overall Sensor Avg: The average voltage reported by all sensors on a sensor interface.

Feedback Sensor Avg: The feedback voltage for use in CLFB control.

This is determined by using Sensors for Feedback, a user adjustable operating parameter.

Warning Setpoint: The web voltage level at which sensor interface will set a “Warning” and illuminate yellow indicator light on interface. The factory default value is 5 kV, however this value may be user adjusted.

Alarm Setpoint: The web voltage level at which sensor interface will set an “Alarm” and illuminate red indicator light on interface. The factory default value is 20 kV, however this value may be user adjusted.

Web Voltage Sensor 1,2,3...: The voltage level reported by a given sensor.

Device Version: The firmware revision in device.

Device Locator Utility: Causes indicator lights on device (power supply) to flicker for a brief time to aid in verifying location of a given device.

Alarm Test Utility: Causes an alarm output to aid in checking/troubleshooting alarm sensing connections.

Device Calibration: Displays the time and date of last calibration and allows for calibration of the power supply and bar. Calibration is used to set the output level to 100% with the bar at maximum output (maximum output varies with bar length and operating conditions).

Clean Bar Threshold: Displays the threshold in output level percent used to set the clean bar alarm and allows for setting of the clean bar threshold.

Firmware Version: The firmware revision in the HL power supply.

5. OPERATION

Apply AC power to the blower motor. Next, turn on the HL/HLC power supply with the main power switch. If using a Control Station, turn on with the main power switch located above the line cord. After the power supply goes through a startup cycle, it will begin operating. The air outlet velocity may be adjusted with the damper blades over the blower intake. Use the highest airspeed the application allows. This insures quick discharge times and maximum coverage.



NOTE – Before switching on power; ensure that units are properly grounded and that static bars and sensors are properly installed.

HL Power Supply Indicators

Power: Lights (green) to indicate power is on and the IQ Power HL Power Supply is ready to operate.

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

Fault: Lights (red) to indicate faulty condition of static bar, 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 bar. 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 (green) indicators are “Low”, “Medium” and “High” and light to indicate the system relative ion output. The output will normally be in the high and medium range. Low output generally indicates the need to clean the static bar.

Bar Type: The (green) indicator next to “Speed” will illuminate when the bar is connected.

Calibrate Locked: The (green) indicator lights when the power supply is connected to a Control Station and the Calibrate button on the HL power supply is locked out. In this case, calibration must be performed through the Control Station.

HL Power Supply Operators

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.

System Start-up

- A. Apply line voltage to AC adapter.
- B. Move power supply “Power” switch to “On” (1) position.
- C. The power supply indicators will briefly self-test during which all will light (on HL power supply only).

D. Power supply indicators will settle to display the system status (on HL power supply only).

On new systems, the output indicator will settle to display low output. Initial calibration must be performed.



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.

E. 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 IQ Power systems that are new or just cleaned and known to be in proper working order.

During calibration the target to be neutralized (web, film, etc.) may remain in place, but **MUST NOT BE MOVING**. If the web is moving past the static bar (e.g. the machine is in operation) the calibration may be faulty.

Without Control Station

The system should be “on” and in the operating mode (the Calibration Locked indicator should not be lit). 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.

With Control Station

The system should be “on”, in the operating mode and connected to the Control Station (the Calibration Locked indicator will be lit on HL power supply only). From the Home page, tap on the device icon. Tap on the Neutralizer tab. Tap on the right arrow to get to page 2. Locate and tap the editing pencil icon for Device Calibration. You will be prompted to enter the Control Station password (default password is “password”). Tap on “Yes” for Calibrate Device? At the completion of calibration the Device Calibration date and time will be updated.

If Device Calibration is not offered on the Control Station, the Calibration Locked indicator on power supply should go out after approximately 90 seconds. Then calibrate power supply by pressing firmly on face label on the word “Calibrate”.

During calibration the system output will be cycled and the two Bar Type lights will illuminate. At completion of calibration the Bar Type lights will flicker. The indicated ion output will be high. The calibration sequence takes five to ten seconds.

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

System Operation (with IQ Power Control Station)

The operation of the IQ Power HL/HLC Power Supply can be controlled through the IQ Power Control Station. In operation, a device icon appears on the Control Station Home Page. Tapping on the device icon opens a Summary page containing

information about the power supply, static neutralizing bar, and static sensor (if connected). More detailed information and user editable parameters are available through device tabs.

There are four Operation Modes available for the IQ Power HL/HLC power supply: Fixed, Auto-Tune, CLFB and Manual. The Operation Mode is found on the Control Station, HL Device page, Neutralizer tab. By tapping on the pencil icon adjustment may be made to the Operation Mode.

Fixed is the default setting and requires no user input. Fixed provides standard operation, with output voltage regulation. The output current is monitored (against a calibration point) and when output current is outside acceptable limits a clean bar alarm will occur.

Auto-Tune is not recommended for use with the Fantom HL blower.

CLFB (Close-Loop Feedback) is an operation mode that incorporates use of an IQ Power HL Sensor. The sensor must be mounted to detect static at the target neutralization area so that it can “report back” on how well the neutralizer is performing. Connecting a sensor into the IQ Power System through a Sensor Interface at the HL power supply automatically associates the sensor with that power supply and sets the “paring” with the power supply for that Fantom HL. When using the HLC power supply, the Sensor Interface must be manually addressed to the same address as the HLC. Once CLFB is enabled and the neutralizer is paired with the sensor, the sensor detects any electrostatic charge at the target area and directs the neutralizer to adjust its ion output to minimize any residual charge at the target. For best performance, the neutralizer should be mounted as close as possible to the target. This allows the neutralizer to use its maximum range of performance while still achieving a minimum of residual charge.

Manual is a power unit mode that includes the voltage regulation and current monitoring found in the standard mode, plus manual control of the ion balance ratio. This mode of operation would only be selected where the web, or material to be neutralized, exhibits extreme and consistent charging of one polarity.

6. MAINTENANCE

Cleaning the Static Bar

A clean brush with nylon bristles should be used to keep the ionization emitter points of 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.

- A. Turn off power supply, or Control Station if used. Disconnect the blower from line voltage.
- B. Remove dirt particles deposited on static bar with a dry, stiff nylon bristle brush.
- C. Blow off static bar with clean, dry compressed air.
- D. Remove resistant coatings deposited on static bar 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.
- E. Blow static bar dry with clean, dry compressed air and ensure the bar is completely dry before re-applying power to 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.



CAUTION – Risk of Injury

Turn off the power supply and disconnect the blower from line voltage before cleaning or removing the static bar. Use care handling the bar, sharp pins present a puncture hazard.

Air Intake Filter

1. Filter cleaning or replacement frequency depends upon the cleanliness of the operating environment. Inspect filters weekly, clean or replace as required.
2. Turn the blower and power supply OFF and remove air filter from intake.
3. The air filter is open cell polyurethane. It may be cleaned with mild soap and water. Rinse thoroughly and allow to dry before reinstalling.
4. To install air filter, place over intake grille. Tuck edges of air filter into the three filter clips.

Ion Balance

1. Balance is set at the factory.
2. Balance may be evaluated using a charged plate monitor such as the Simco-Ion CPM. The plate should be placed at the typical operating distance for testing and adjustment. Static charges in the vicinity of measurement will affect reading, remove or neutralize static charges in the vicinity before taking ion balance measurements.
3. If anything other than an even balance is required, the balance can be manually adjusted through the Control Station. Set the power supply to Manual Mode and adjust the balance as necessary to neutralize charge.

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 before troubleshooting. Troubleshooting must be performed by a qualified service person.

Operational Check

1. Rub a small strip of plastic film until a static charge is developed (cellophane works well). The charge can either be measured with an electrostatic fieldmeter or will be evidenced by the film's attraction to a grounded metal surface.
2. Pass the film in front of the blower for five seconds at a distance of one foot. Check for any charge remaining on the film as in step 1.
3. If the static charge has been neutralized, then the device is working properly.

If equipment fails to function properly, contact Simco-Ion Customer Service or your local Simco-Ion Representative.



NOTE – Never use a “spark test” to check operation. The ionizing circuit design of the IQ Power system makes the “spark test” inconclusive and arcing may damage the unit.

PROBLEM	CAUSE	SOLUTION
Blower not running	Power not on	Turn on AC power at source
	Line voltage not supplied	Check line voltage and connections
Power indicator NOT illuminated or Icon not appearing on Control Station	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 or Clean Bar alarm on Control Station	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 or Gray icon on Control Station	No static bar connected	Install static bar and connect to power supply
	Static bar high voltage connector is not connected	Turn off power, reconnect static bar and secure plug with captive screws
	Static bar high voltage connector missing bar type sense pin	Replace static bar high voltage connector plug
	Bar power off at Control Station	Turn bar power on through device page on Control Station
Fault indicator illuminated or Fault alarm on Control Station	Static bar mounted too close to grounded metal	Separate static bar from grounded metal
	Damage to high voltage connector	Replace high voltage connector
	Damage to high voltage cable	Replace static bar
	High voltage module inside power supply faulty	Replace high voltage module

8. PARTS AND ACCESSORIES

Part Description	Part No.
Fantom HL Blower (115 VAC input)	4017126
IQ Power HL Power Supply (no AC adapter)	4012508
IQ Power HL Power Supply (with AC adapter, 100/120 VAC Japan / North America Cord)	4012509
Replacement Power Unit for IQ Power HLC SPEED (for use with HL Speed Bars only)	4110350
IQ Power HL Speed-T Bar (for Fantom HL Blower)	4015798
AC Adapter (100-240 VAC input, 24 VDC, 1.6A max output)	4108104
Line Cord, 100/120 VAC Japan/ North America	4106272
Air Filter Replacement Kit (20 Filters)	4100642
Ground Lead (90" with ring terminals)	4108926
DB25 Connector (for Alarm Output)	4612203
DB25 Back Shell (for Alarm Output)	4612204
Modular Cable (RJ-45 to RJ-45, IQ Power 8-conductor, crossover wired) for use between Control Station and IQ Power HL/HLC (Ref. Figure 10 & 11) DO NOT USE Standard Ethernet Cables	
0.91 meter [3 foot] black	4520785
2.13 meter [7 foot] black	4520786
4.27 meter [14 foot] black	4520787
7.62 meter [25 foot] black	4520784
15.24 meter [50 foot] black	4520844
22.86 meter [75 foot] black	4520845
30.48 meter [100 foot] black	4520832
HL Junction Block	4012352
HL Conduit Seal	4108231

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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