Air Sniper Universal Induct 300W – User Guide

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A Word to Air Sniper Owners

At Air Sniper, we design and build supplemental air sanitization systems with complete customer satisfaction in mind. To ensure trouble-free operation of your supplemental air sanitization system, please read this manual and follow installation recommendations.

An authorized Air Sniper representative will know the system best, and if service or maintenance is needed, the Air Sniper team is here to help. Our team provides you with the best possible service and ensuring your satisfaction with our product.

For inquiries, questions or concerns regarding the unit, or any other Air Sniper products contact:

1.866.472.1059
info@airsniper.ca
Air Sniper Bay 11
6565 40th Street S.E.
Calgary, AB Canada T2C 2J9

Call, email or fill out the online form and one of our customer service specialists will get in touch with you.

IMPORTANT SAFETY INSTRUCTIONS

WARNING: NEVER EXPOSE SKIN OR EYES TO AN ACTIVE UV LAMP

Read and follow all instructions prior to installation. Read the directions and all safety labels prior to operation. Failure to follow any instructions or labels may result in injury of the user or damage to the unit. Save this manual for future reference.

1. The Induct 300W unit is intended to be used for supplemental air sanitization inside of a sealed air chamber. **Do not** attempt to operate the UV-C lamps outside of the sealed housing.
2. Electrical shock may cause injury or death. Ensure that the unit and all power sources are turned off prior to installation or replacement.
3. Untrained personnel can perform installation and replacement of the unit as per the instructions within this manual. **Do not** attempt to perform any maintenance on your unit. Improper maintenance can result in damage to the unit and injury of the user. If your unit requires maintenance, please contact Air Sniper. Replacement of the UV-C lamp by the user is **not allowed**.
4. **Do not** attempt to modify your unit. Modification of this unit may result in injury of the user or damage to the unit.
5. Inspect your unit for any abnormalities or damage prior to installation and use. Damaged units can result in harmful UV-C leaks. **Do not** operate units that are damaged.
6. If the supply cord is damaged, it must be replaced by the manufacturer, a service agent, or similarly qualified person.
7. This appliance contains a UV-C emitter. UV-C lamps contain small amounts of mercury. If the lamp is broken or damaged, dispose of it properly as per your local safety regulations.
8. The Induct 300W unit is not to be used by persons (including children) with a lack of experience and knowledge, or reduced physical, sensory, or mental capabilities. Children shall be supervised so that they do not play with the unit.
9. It is recommended that a minimum of 2 people are present when installing the unit. Units can be heavy and require care and precision when installing.
10. Air Sniper products are not waterproof. **Do not** attempt to use your unit in a wet environment.
11. Air Sniper products are designed for indoor use only. **Do not** attempt to install your unit outdoors.
12. The use of this device is a supplement to and not a substitute for standard infection control practices; users must continue to follow all current infection control practices related to cleaning and disinfecting environmental surfaces.
13. The Induct 300W unit does not require cleaning to continue to operate effectively.
14. **FIRST AID INSTRUCTIONS:** If injury occurs, contact your doctor or appropriate emergency services.
15. **WARNING: UV RADIATION IS EMITTED FROM THIS DEVICE**. Unintended use of the appliance or damage to the housing may result in exposure to dangerous UV-C radiation. UV-C radiation may - even in small doses - cause harm to the skin and eyes.

ADDITIONAL SAFETY REQUIREMENTS

The information in this section is from the guidelines set out by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) in chapter 17 of their 2020 handbook. Citation can be found at the end of this section.

Lamp Disposal

UV lamps should be treated the same as other mercury-containing devices, such as fluorescent bulbs, according to local regulations. Most lamps must be treated as hazardous waste and cannot be discarded with regular waste. Low-mercury bulbs often can be discarded as regular waste; however, some state and local jurisdictions classify these lamps as hazardous waste. The U.S. EPA's universal waste regulations allow users to treat mercury lamps as regular waste for the purpose of transporting to a recycling facility (EPA 2011). This simplified process was developed to promote recycling. The National Electrical Manufacturers Association (NEMA) maintains a list of companies claiming to recycle or handle used mercury lamps at www.lamprecycle.org.

Safety Design Guidance

In-duct systems should be fully enclosed to prevent leakage of UV radiation to unprotected persons or materials outside of the HVAC equipment.

All access panels or doors to the lamp chamber and panels or doors to adjacent chambers where UV radiation may penetrate or be reflected should have warning labels in appropriate languages. Labels should be on the outside of each panel or door, in a prominent location visible to people accessing the system.

Lamp chambers should also have electrical disconnect devices. Positive disconnection devices are preferred over switches. Disconnection devices must be able to be locked or tagged out, and should be located outside the lamp chamber, next to the chamber's primary access panel or door. Devices should be wired in series so that opening any single access point deenergizes the entire UV system. On/off devices for UV lamps must not be sited in the same location as general room lighting; instead, they must be in a location that only authorized persons can access, and should be locked to ensure that they are not accidentally turned on or off.

The fifth edition of UL Standard 1995 requires that no opening permits leakage of UV-C greater than 0.1 μW/cm2, and points of intentional access to UV sources must be equipped with an interlocking mechanism that deenergizes the UV sources when opened.

The lamp chamber should have one or more viewports of UV-C-absorbing materials (ordinary glass). Viewports should be sized and located to allow an operating UV system to be viewed from outside of the HVAC equipment.

Upper-air systems should have on/off switches and an electrical disconnect device on the louvers. If UV radiation measurements at the time of initial installation exceed the recommended exposure limit, all highly UV-reflecting materials should be removed, replaced, or covered. UV-absorbing paints containing titanium oxide can be used on ceilings and walls to minimize reflectance in the occupied space.

Warning labels must be posted on all upper-air UV fixtures to alert personnel of potential eye and skin hazards. Damaged or illegible labels must be replaced as a high priority. Warning labels must contain the following information:

• Wall sign for upper-air UV-C
***Caution**: Ultraviolet energy. Switch off lamps before entering upper room.*
• General warning posted near UV-C lamps
***Caution**: Ultraviolet energy. Protect eyes and skin.*
• Warning posted on the door of air handlers where UV-C lamps are present in ductwork
***Warning**: Ultraviolet energy in duct. Disconnect power before servicing.*

Personnel Safety Training

Workers should be provided with as much training as necessary, including health and safety training, and some degree of training in handling lamps and materials. Workers should be made aware of hazards in the work area and trained in precautions to protect themselves. Training topics should include

• UV exposure hazards
• Electrical safety
• Lock-out/tag-out
• Health hazards of mercury
• Rotating machinery
• Slippery condensate pans
• Sharp unfinished edges
• Confined-space entry (if applicable)
• Emergency procedures

Workers expected to clean up broken lamps should be trained in proper protection, cleanup, and disposal.

No personnel should be subjected to direct UV exposure, but if exposure is unavoidable, personnel should wear protective clothing (no exposed skin), protective eyewear, and gloves. Most eyewear, including prescription glasses, may be sufficient to protect eyes from UV, but not all offer complete coverage (energy could still reach the eyes from the sides or reflections from inside the glasses); standard-issue, full wraparound protective goggles may be the best alternative.

If individual lamp operating condition must be observed, this should preferably be done using the viewport window(s). Access to lamps should only be allowed when lamps are deenergized. The lamps should be turned off before air-handling unit (AHU) or fan shutdown to allow the lamps to cool. Workers should always wear protective eyewear and puncture-resistant gloves for protection in case a lamp breaks.

Access to the lamp chamber should follow a site-specific lock-out/tag-out procedure. Do not rely on panel and door safety switches as the sole method to ensure deenergized lamps. Doors may be inadvertently closed or switches may be inadvertently contacted, resulting in unexpected lamp activation.

If workers will enter the condensate area of equipment, the condensate pan should be drained and any residual water removed. In general, avoid performing readings with the fan running and workers inside an AHU (e.g., to test for output reduction caused by air cooling). Tests of this nature should be instrumented and monitored from outside the equipment. During maintenance, renovation, or repair work in rooms where upper-air UV systems are present, all UVGI systems must be deactivated before personnel enter the upper part of the room.

Lamp Breakage

If a lamp breaks, all workers must exit the HVAC equipment. Panels or doors should be left open and any additional lamp chamber access points should also be opened. Do not turn air-handling unit fans back on. After a period of 15 minutes, workers may reenter the HVAC equipment to begin lamp clean-up.

If a lamp breaks in a worker's hand, the worker should not exit the HVAC equipment with the broken lamp. Carefully set the broken lamp down, then exit the equipment. When possible, try not to set the broken lamp in any standing condensate water. Follow standard ventilation and reentry procedures.

Cleanup requires special care because of mercury drop proliferation and should be performed by trained workers. As a minimum, workers should wear cut-resistant gloves, as well as safety glasses to protect eyes from glass fragments. Large lamp pieces should be carefully picked up and placed in an impervious bag. HEPA-vacuum the remaining particles, or use other means to avoid dust generation.

American Society of Heating, Refrigerating and Air-Conditioning Engineers [ASHRAE]. (2020). ASHRAE Handbook. www.ashrae.org. Retrieved August 7, 2024, from https://www.ashrae.org/file%20library/technical%20resources/covid-19/i-p_s20_ch17.pdf

Installation

CAUTION: Use care when unboxing and handling your unit. Ensure adequate space is available for unboxing, installation, and operation prior to unboxing or handling your unit. Ensure that the intended placement of your unit allows access to the necessary power connections and does not create a hazard during or after connection.

A line conditioner is required to prevent damage. To prevent damage, please ensure line conditioners are present on all AC inputs to protect equipment from electrical events.

Please see below for recommended line conditioner specifications. Line conditioners can be purchased online or through a local building supply store.

Universal Induct 300W User Guide

Recommended Line Conditioner

Power Protection Device - Surge Protective Device with Undervoltage Protection, 3-Mode, 120-240 VAC 1Ph, Type 2

Item CD1-024R

PRODUCT DESCRIPTION

The COMPRESSOR DEFENDER® surge protector is the only all-in-one undervoltage and surge power protection device on the HVAC Market, providing protection for central A/C and heat pump condensing units and their associated motors, controls and components—both electronic and mechanical. It can be installed inside the condensing unit or externally on the outdoor A/C disconnect. Autosense voltage technology protects at any voltage from 120-240 VAC, making it an ideal solution for residential or light commercial installations. Trusted, state-of-the-art TPMOV® (Thermally Protected Metal Oxide Varistor) surge protection technology eliminates the potentially hazardous failure modes that are associated with standard MOV technology. The device is also designed with integrated 3-minute short cycle time delay protection.

FEATURES

- TPMOV® surge protection technology
- 3-year, $7500 connected equipment warranty
- Auto-sense voltage technology
- Quick-reacting, 5-line cycle undervoltage response time
- 120/208-240 VAC universal input
- 24 VAC/VDC, 2 A control thermostat output
- 3-minute short cycle time delay
- Two LED indicators provide real time status for quick and easy troubleshooting and functional visibility for end users
- Surge protection complies with the latest UL 1449, 4th Edition, surge protective device requirements
- Undervoltage protection complies with AHRI standard 110-2016 Range B Protective Device

APPLICATIONS

- Distribution Panel
- Service Entrance
- HVAC Equipment Protection

TECHNICAL DATA

General	
Model Number	CD1-024R
Description	Surge Protective Device with Undervoltage Protection, 3-Mode, 120-240 VAC 1Ph, Type 2
UPC Code	078275142923
Brand	Intermatic
Country of Origin (Intermatic)	MEXICO
Warranty Period	3-Year limited
Connected Equipment Warranty Period	3-Year
Connected Equipment Warranty Coverage (USD)	$7,500

Electrical Specifications	
Modes of Protection	3 (L1-N, L2-N, L1-L2)
Short Circuit Current Rating	100 kA
Nominal Discharge Current	20 kA
Surge Protection Technology	TPMOV®
Maximum Continuous Operating Voltage (L-L)	300
Maximum Continuous Operating Voltage (L-N/G)	150
Voltage Protection Rating (L-L)	1200
Voltage Protection Rating (L-N/G)	700
Power Disruption Response Time	3 line cycles*

Line Conditioner Specifications

Thermostat Relay	Normally Closed Relay, 24 VAC
Control Specifications	
Undervoltage Pickup [120 VAC] (VAC)	104
Undervoltage Pickup [208 VAC] (VAC)	180
Undervoltage Pickup [240 VAC] (VAC)	208
Undervoltage Response Time (cycles)	5 line cycles*
Undervoltage LED Indicator	Red
Short Cycle LED Indicator	Green
Short Cycle Delay	3 min
Surge Protection Type	2
Surge Protection LED Indicator	Green
Mechanical Specifications	
Enclosure Type	Outdoor type 3
Dimensions	
Product Dimensions (H x W x D) in	6.406 x 1.593 x 4 in
Wire Size Max	#10 AWG, Tinned Copper
Material Specifications	
Color	Gray
Load Ratings	
Control Output Current Rating	2 A @ 24 VAC, isolated NC contact
Packaging	
Shipping Weight (lbs)	1.198
Unit Carton Dimensions (H x W x L) in	8 x 3 x 5 in
Environmental Specifications	
Temperature (operation)	-40 °F to 158 °F / (-40 °C to 70 °C)
Standards and Certifications	
Undervoltage Protection Compliance	AHRI
Surge Protection Compliance	ANSI/UL1449 4th Edition
UL Certification	cULus
Other Certifications and Compatibilities	HVACR; Green Energy
California Proposition 65	DEHP
RoHS Certification	X

Included Parts

Included in your package from Air Sniper, you will find the following parts. Quantities of these parts will vary depending on the quantities purchased:

- Universal Induct 300W main assembly
- (Optional) magnet-lined reflective panels

- #8 Tek screws

Required Materials & Tools

The following additional materials are required to perform installation of the product:

- Drill
- Drill bit to initiate cut-out puncture
- Sheet metal tin-snips or other cutting tool as appropriate
- Line conditioner

Installation Procedure

1. Prepare location for installation

1.1. Locate the duct where the Induct assembly will be mounted. Both return and supply ducts are acceptable for installation.

1.2. Turn off all power to the HVAC unit.

1.3. Turn off all power to the mains circuit that will be used to power the product.

WARNING: Failure to shut off all power to the HVAC system and mains circuit may result in damage to systems, fire, injury, electrocution, or death.

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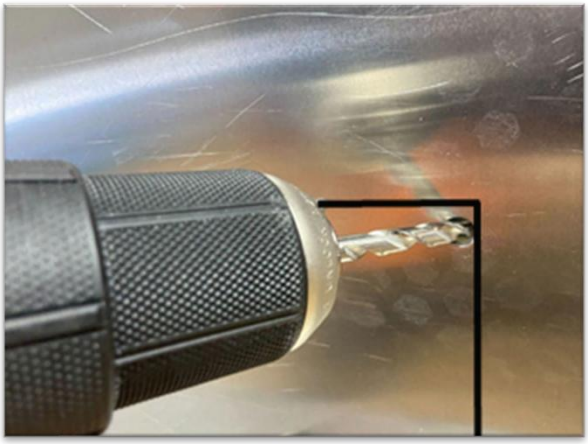
2. Cut into the duct

2.1. Use one of the optional reflective panels as a template, if available. Trace around the panel with a marker on the duct where the main assembly will be installed. The dimensions of this rectangle should be 22¾” x 8”.

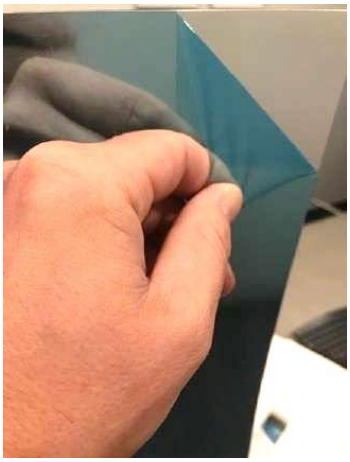
2.2. Drill a hole on one of the corners of your traced outline, as a starting point to cut out the opening in the duct for the main assembly. Ensure that the drill hole is made inside the perimeter traced, so no gap remains after installation.



2.3. Using the sheet metal snips (or other appropriate cutting device), carefully follow the trace, slowly cutting the opening where the unit is to be installed.

3. Place optional reflective panels

3.1. If using panels, remove the blue protective plastic film from the provided magnetic reflective panel.



3.2. Carefully place the unit through the cut-out in the duct.

3.3. Mount the unit in place using 12 #8 tek screws in the pre-drilled mounting holes.

3.4. If any gaps remain after installation, HVAC tape may be required to prevent light leakage.

It is recommended to consider an installation scheme that allows easy access for maintenance.

4. Connect system wiring

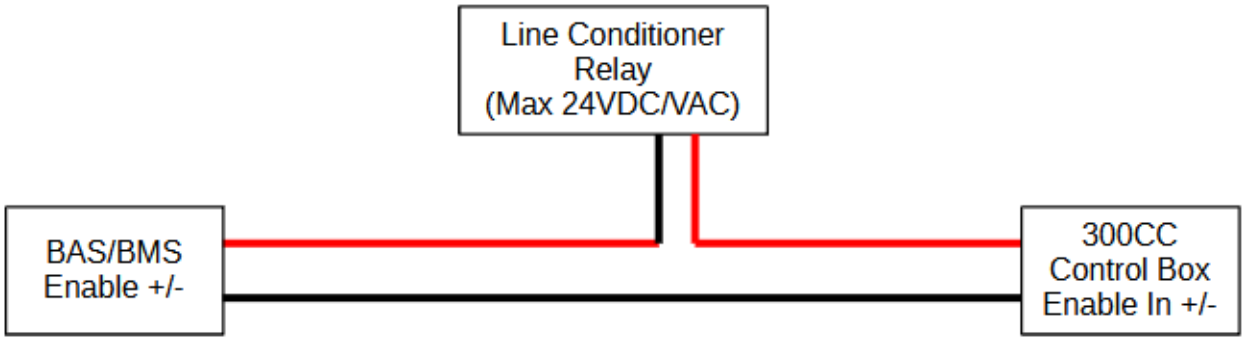
4.1. The following wiring connections must be made:

4.1.1. 120 or 240 VAC power source to main assembly power cable. This circuit must remain de-energized until the entire system installation is complete.

WARNING: Mains power circuit must remain de-energized for the duration of this process.

4.1.2. (**Optional**) BAS enable signal and/or feedback lines to main assembly BAS connectors. A BAS enable signal is only required if this option is requested.

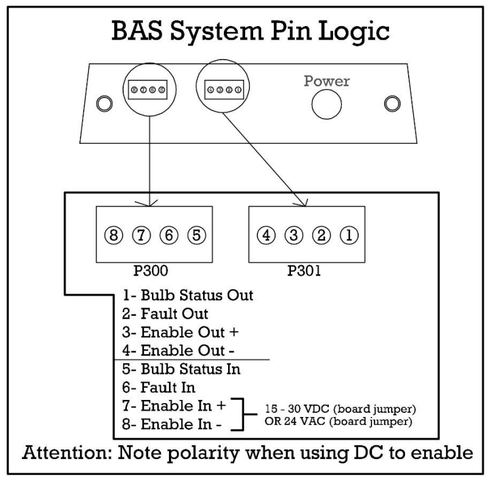
4.1.3. (**Optional**) For BAS-enabled systems using the recommended line conditioner: the line conditioner's relay output in series with the BAS enable line. This connection is only required if the BAS option is requested and the recommended line conditioner is installed.

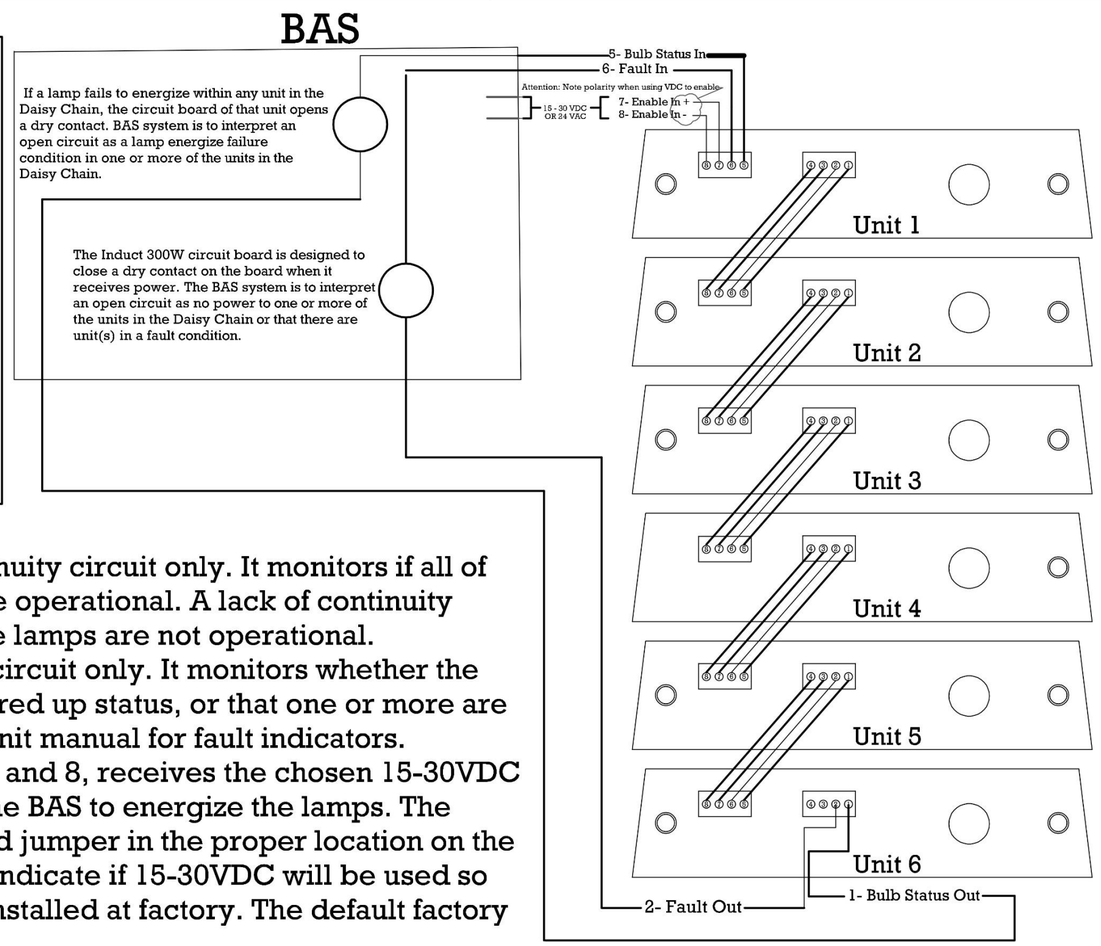


4.2. (**Optional**) refer to the diagram below for detailed BAS wiring information.

BAS Compatible Induct 300W
Daisy Chain Control Wiring Detail
Up to a six unit system configuration

This detail is for connecting up to six units to a BAS system. If less than 6 units are in the system the Pin 1 and 2 out configuration on Unit 6 will be the configuration of the last unit in system.





1 - The Bulb Status circuit is a continuity circuit only. It monitors if all of the lamps in the Daisy Chain are operational. A lack of continuity indicates that one or more of the lamps are not operational.
2 - The Fault circuit is a continuity circuit only. It monitors whether the circuit boards are all in a powered up status, or that one or more are in a fault condition. Reference unit manual for fault indicators.
3 - The Enable In circuit, location 7 and 8, receives the chosen 15-30VDC or 24VAC supply power from the BAS to energize the lamps. The desired supply requires a board jumper in the proper location on the circuit board. End User should indicate if 15-30VDC will be used so that proper jumper position is installed at factory. The default factory jumper location is for 24VAC.

REVISIONS

REV.	DESCRIPTION	DATE	BY	APPROVED
1.0	Revised to supply more information for End User	11/11/2024	BKD	STH

DIMENSIONS IN mm [INCHES]
TOLERANCES ARE:
DISTANCE:
0 - 50 -) ± 0.1 [0.004]
50 - 150 -) ± 0.5 [0.020]
150+ -) ± 1.0 [0.040]
ANGLES: -) ± 0.5°
FRACTIONS: -) ± 1/32

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AIR
Alpine Innovative Research

Induct 300W BAS Compatible Control Logic Schematics

Revision 1.0

SCALE 1:1 SHEET 1 OF 1

5. Activate system

5.1. Once all mounting and wiring is complete, ensure there are no loose wires remaining and all gaps in the duct around the main assembly have been covered.

5.2. Ensure no wiring is exposed and no further electrical work is still being performed.

5.3. At this time, the mains power circuit attached to the line conditioner for your Air Sniper system can be re-energized, per your organization's procedures.

5.4. Re-activate the HVAC system. Allow enough time for the system to stabilize.

5.5. Once power is detected by the assembly and the system comes online, the "Lamp System Operating" light will illuminate green, indicating that the lamp assembly is activated.

5.5.1. If all the connections are correct and the outlet is tested to verify the unit is receiving power but the "Power On" LED still isn't illuminated, turn your unit off and contact an Air Sniper representative.

Bulb Status

The “Lamp System Operating” LED can illuminate three different colours, each indicating a different bulb status.

The variations are as follows:

	**Green: Lamp operating, the lamp is operating as intended.**
	**Yellow: Lamp life warning, the lamp is nearing the end of its lifespan, requires replacement in the near future.**
	**Red: Lamp life exceeded, lamp has reached the end of its lifespan, requires immediate replacement.**

When the “**Lamp Operating**” LED color is yellow indicating “**Lamp Life Warning**” please contact your local distributor or an Air Sniper representative directly for a replacement. The Induct 300W unit is designed as a complete unit, therefore when the lamp expires, the entire unit must be replaced.

Troubleshooting

If your unit is not operating as expected, there are several steps you can take to attempt to correct the problem.

If the "**Lamp Operating**" LED is not illuminating after powering on:

- Inspect the unit and the power connections to verify nothing appears damaged.
- Inspect the BAS connections (if present) to verify nothing appears damaged.
- Check that the selected power source is in fact providing power to the unit.
- Check that the BAS enable (if configured and present) is providing a valid signal (see BAS wiring diagram).
- Check that both ends of the power connections are correctly wired and securely connected to the unit and the power source.

If your unit still does not operate as expected, contact your Air Sniper representative for assistance.

WARNING: Do not attempt to operate the UVC lamp outside of the lamp chamber. UVC radiation can be acutely harmful to unprotected skin and eyes.
