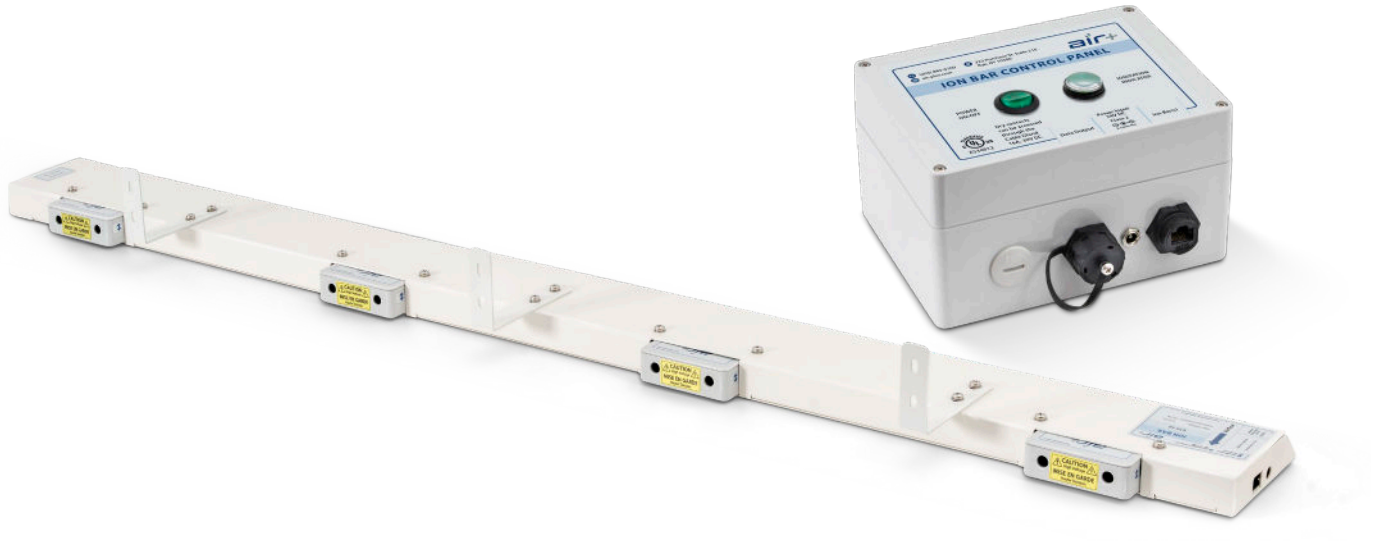
Ion Bar

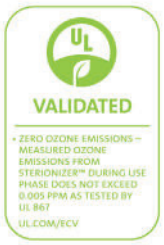
Installation, Operation, and Maintenance Manual



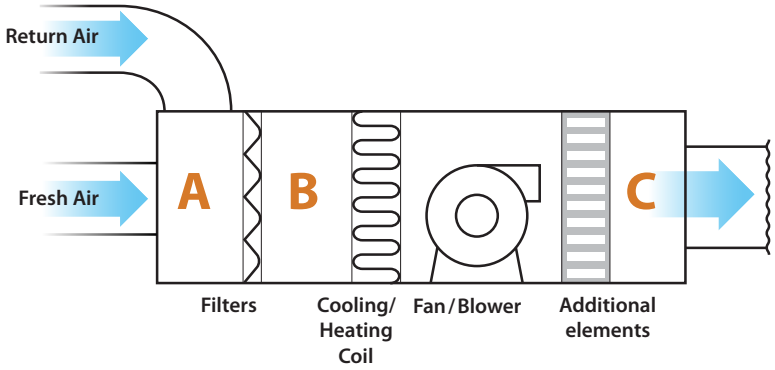
The Air+ Ion Bar is an auto-cleaning, zero-ozone, needlepoint ionizer producing billions of positive and negative ions that deactivate bacteria and viruses, agglomerate particulate, and neutralize other harmful pollutants. No maintenance is required as the needles are cleaned of dirt and dust automatically and programmed from the factory at once per 24 hours of operation and upon start-up.

The Ion Bar can be installed upstream of the cooling coil in an Air Handling Unit (AHU) or Roof Top Unit (RTU), but a better location is downstream of all coils and filters and near the unit discharge. The goal of this technology is to introduce ions to the airflow and have them delivered to the occupied space. The Ion Bar is available in lengths from 1 to 6 feet in 1-foot increments to cover a wide range of airflows.

The unit can be powered with 24V DC or a power supply can be provided for accessing 120V or 240V AC power circuits. The Ion Bar is powered from a remotely mounted control panel. The control panel can power multiple Ion Bars. The unit has communication capabilities including a dry contact and data export to the BMS. The Ion Bar provides an electronic signal only when the ionizer is creating ions. This signal is used to initiate a relay that closes the dry contact and powers the Ionization LED.



Potential Ion Bar Installation Locations:



A

Mounting the Ion Bar before the filter floods the filter with ions which deactivate microorganisms captured by the filter.

B

The Ion Bar can be mounted before the heating or cooling coils. This allows the flow of ions through the coils reducing the accumulation of bio-films and other pollutants on the coil surfaces.

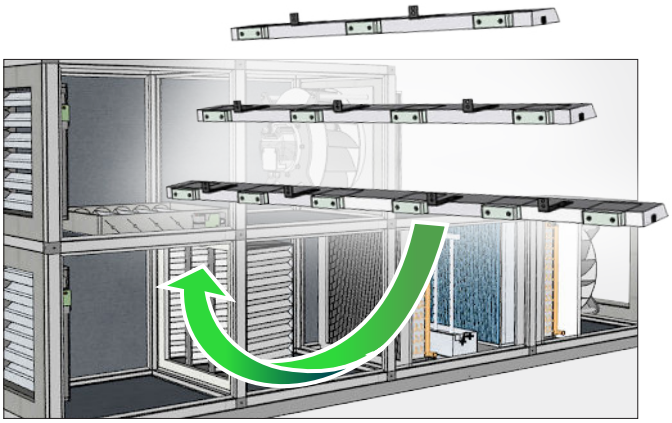
C

Mounting the Ion Bar downstream of the filter and all coils is the most effective location for treating the occupied spaces. Ions are introduced to the air stream and delivered by the duct system to the space.

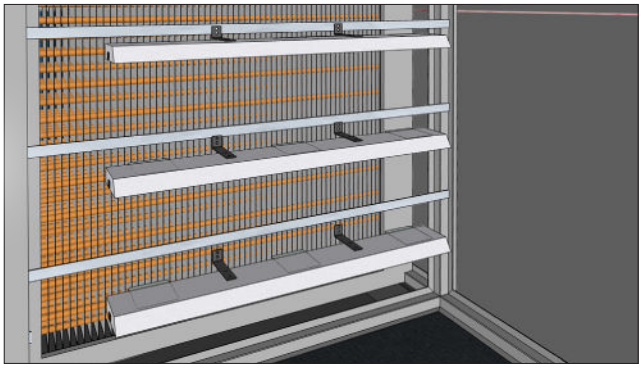
Ion Bar specifications

Model number	Bar - 12	Bar - 24	Bar - 36	Bar - 48	Bar - 60	Bar - 72
Maximum Airflow (CFM)	5,000	10,000	15,000	20,000	25,000	30,000
Quantity of Ionizer Cartridges	1	2	3	4	5	6
Operating Environment	Temp. 14 - 158 °F, Humidity 20-93% non-condensing					
AHU Bar Input Voltage	24V DC, 50/60 Hz					
Optional Power Supply	120V/240V 1 Phase, 60 Hz to 24V DC, Part No. PS-High					
Power consumption	4.8 W	9.6 W	14.4 W	19.2 W	24 W	28.8 W
Data Output Protocol	Modbus RTU; RS-485					
Outside Dimensions (Inches)	7.9 x 5.3 x 1.1	19.7 x 5.3 x 1.1	31.5 x 5.3 x 1.1	43.3 x 5.3 x 1.1	55.1 x 5.3 x 1.1	66.9 x 5.3 x 1.1
Weight (lbs)) +/-10%	0.9	1.7	2.8	3.9	5.1	6
Recommended Ion Concentration	1,000 to 2,000 ions per cm^3 in the occupied space.					

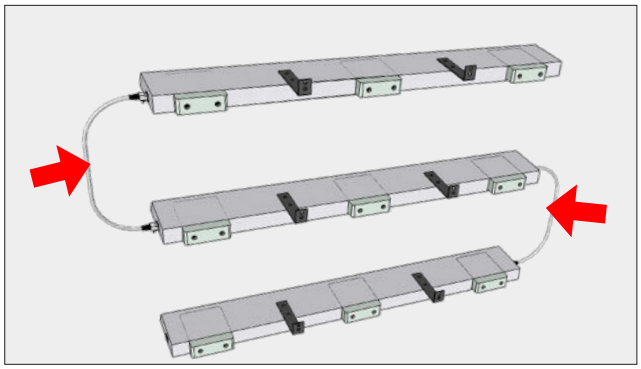
Ion Bar Installation Steps:



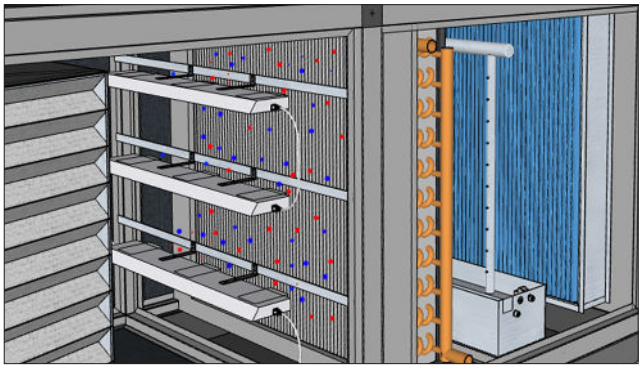
1. The number of Ion Bars, their length and location need to be defined.



2. Screw the Ion Bar through the mounting brackets to the coil frame. If there is no frame available, contractor will need to provide a Unistrut or C-channel structure.

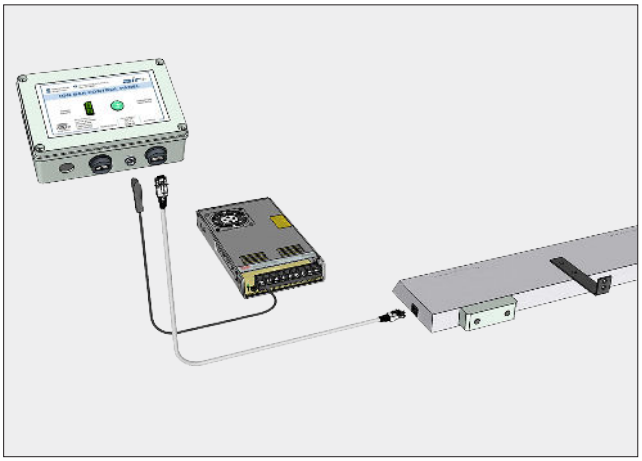


3. Multiple Ion Bars can be daisy chained together using CAT5 cables.



4. The Ion Bar generates ions which improve air quality and protect the various components of the AHU. Connect the Ion to the Control Panel.

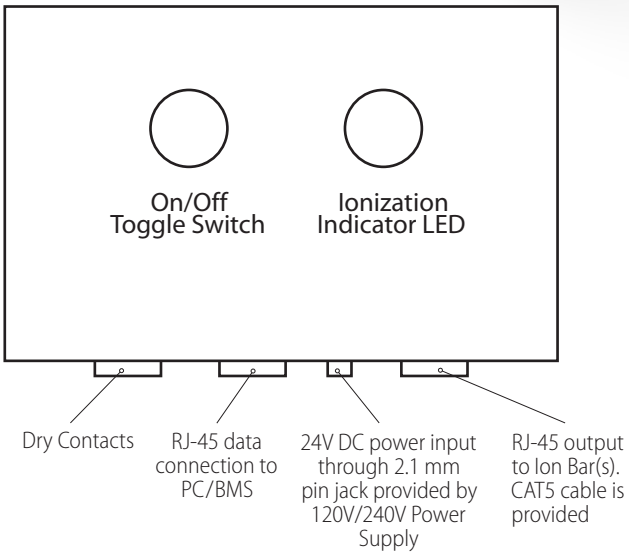
Powering the Ion Bar:



Mount the Control Panel on the outside of the AHU near the Bar mounting location. The control panel is for indoor use only. Wire the 120V/240V AC to 24V DC power supply and insert the 2.1mm pin into the pin jack on the front of the Control Panel. Then insert the CAT5 cable into the RJ-45 jacks on the front of the control panel and the Ion Bar. Once all wiring is complete, turn the Power On/Off switch to "On".

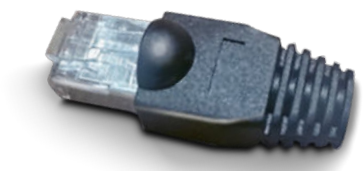
Avoid moisture getting onto the Ion Bar or any of the ionizing cartridges.

Control Panel

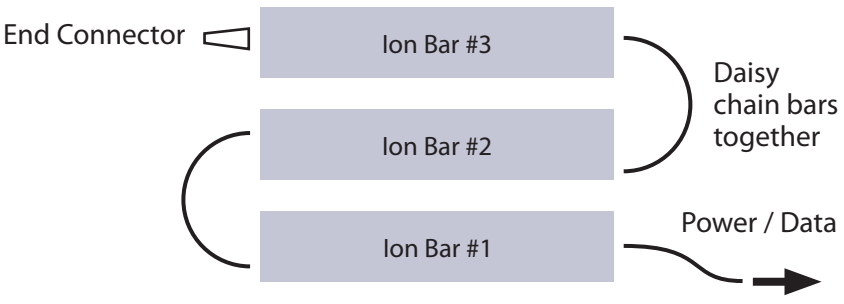


The control panel is used to provide power to the Ion Bar or multiple Bars. It is also used to accept data from the Bar such as operating characteristics or status. Mount the control panel on the outside of an AHU in an easily accessible location. For RTUs, mount the control panel inside the RTU or in a location where water will not penetrate the control panel.

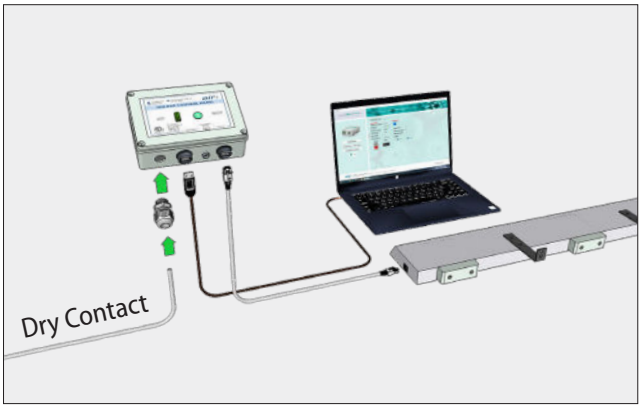
The "End Connector" must be plugged into the end of the last Ion Bar. If only one Bar is being used, plug the End Connector into the end of that Bar.



End Connector - must be plugged into the end of the last Bar

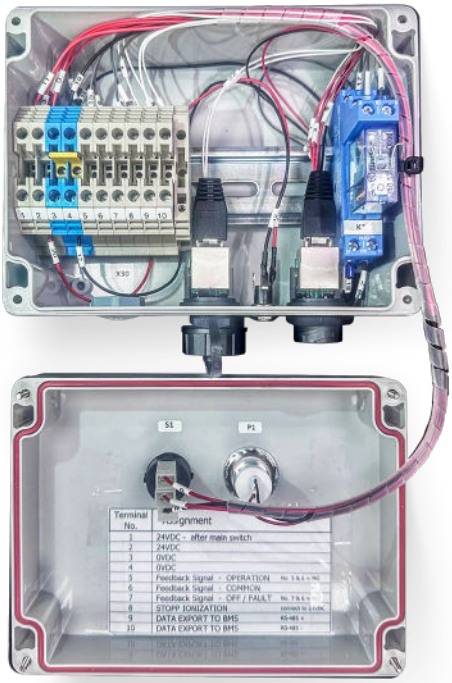


Options for Controlling and Monitoring the Bar(s):



To control and monitor the Bars, there is:

1. A serial interface (RJ-45 connector) for connecting a PC with associated software or a controller with serial RS-485 input.
2. A Dry Contact inside the control panel which communicates the operating status of the Bars to the BAS.
3. An input which when connected to 24VDC interrupts the Bar operation.



Connecting the Dry Contact:

1. Insert the BAS wires through the cable gland into the control panel.
2. Connect the wires to terminals 5, 6 or 7 according to the terminal assignment indicated on the inside cover.
   - Terminals 5 & 6 = Normally Open (NO)
   - Terminal 7 & 6 = Normally Closed (NC)
3. Correct operation of all connected ionizers = Terminals 5 & 6 are connected.
4. In other cases, terminals 6 & 7 are connected.

Dry Contact Specifications

Contact Configuration Rating		**250V AC, 16A**
Rated current/Maximum peak current	A	16