INSTALLATION, OPERATION,
AND MAINTENANCE MANUAL

DUCT ION SENSOR

air+
air-plus.com

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GENERAL DESCRIPTION

The Air+ Duct Ion Sensor will sense the presence of ions in a duct or air handler and close or open a dry contact to communicate with the Building Management System (BMS). The unit contains a sensitivity knob that can be field adjusted to increase or decrease the level at which the ions are sensed. A dry contact will open below this value and will close above the value. The sensor also includes LEDs for power and ion indication. The unit is installed on the side of the duct utilizing the pre-drilled mounting brackets located at either side of the unit with the probe extending into the airstream.

MECHANICAL INSTALLATION

CAUTION: Inspect the unit carefully for any damage. Specifically, ensure that outer mesh is not in contact with the inner tube. Adjust mesh if necessary. If damage is significant and can't be repaired, contact Air+ customer support.

Mounting Notes:

- The Duct Ion Sensor should be mounted in the supply duct or air handler downstream of the ionizer. Ensure that airflow ranges between 100 and 2,000 ft/min.
- Avoid wet locations like downstream of a humidifier or cooling coil.
- The duct must be 10" deep to accommodate the length of the sensing probe.
- The Duct Ion Sensor may be powered from the 12V DC output jack on an Air+ Bar. See Air+ Bar IOM Manual for details.

To mount the Duct Ion Sensor (See Figure 1):

1. Cut or drill a 2.5" diameter hole in the duct.
2. Insert the Duct Ion Sensor probe through the hole.
3. Screw the Duct Ion Sensor to the duct through the mounting holes on the flange using self-tapping sheet metal screws (not provided).
4. Set the ion sensitivity knob to 10K and adjust as necessary.

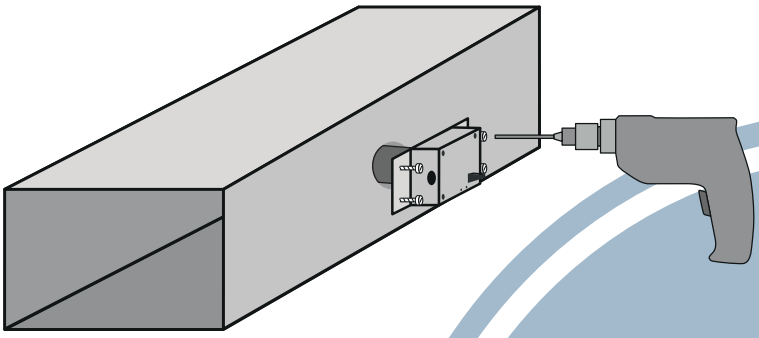

FIGURE 1

ELECTRICAL INSTALLATION

CAUTION: Do not connect power to the Duct Ion Sensor before the installation is complete. Always disconnect power before handling any of the unit components.

To Power the Duct Ion Sensor (See Figure 2):

1. Remove the cover of the sensor by unscrewing the 4 cover screws.
2. Either bring 24V AC or DC wires directly to the unit or use a factory provided 120V/240V to 12V DC power supply. (Air+ Part No. PS-Low).
3. Feed the appropriate power wires through the port on the left side of the unit. Connect 24V AC power wires to pins 1 and 3 or 12V/24V DC wires to pins 2 and 3.
4. Feed the BMS communication wires through the port and land them on pins 4 and 5 for a normally closed (NC) contact or pins 5 and 6 for a normally open (NO) contact. 250V AC or DC at 2 amps max.
5. Optionally, 12V DC power can be sourced from the 2.1mm pin jack on an Air+ Bar control panel.
6. Close the cover and reinstall the screws.

FIGURE 2

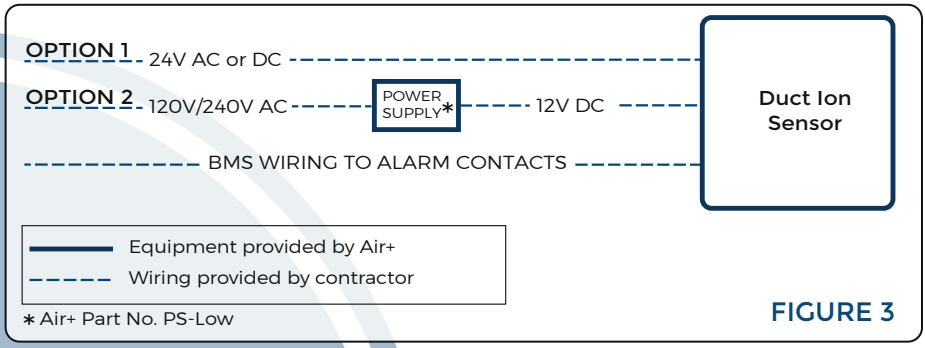

FIGURE 3

BMS ALARM CONTACTS

The Duct Ion Sensor has an Alarm Circuit that provides for communication to the BMS. The Alarm Circuit utilizes a dry contact that closes (when wired to pins 4 and 5) when the sensed ion levels meet or exceed the level set by the control knob or opens (when wired to pins 5 and 6) and the red "IONS" LED is illuminated. If the sensed ion levels are not meeting the setting on the control knob, the opposite occurs, and the red "IONS" LED is not illuminated.

OPERATION

1. When the Duct Ion Sensor is powered properly, the green "PWR" LED is illuminated. When the sensed ion levels meet or exceed the setting of the ion control knob, the red "IONS" LED is illuminated.

TROUBLESHOOTING

1. If the Duct Ion Sensor is not operating, check that the power LED is illuminated. If it is not, open the cover and ensure that all wires are connected properly.
2. Test the BMS Dry Contacts using a multimeter set to continuity mode. If the multimeter alarms, the circuit is continuous, and operation is confirmed. If it does not alarm, the circuit is not continuous and there is a problem. Contact Air+ customer support as needed.