



Pressure Control for the *RecoupAerator 200DX* *Installation Guide*



The Pressure Transmitter option enables the *RecoupAerator*[®] to continuously and automatically maintain the indoor/outdoor pressure differential target of 2.5Pa max, dependent on the air tightness of your home or building.

Why Monitor Indoor and Outdoor Pressure?

Today houses are built more tightly to minimize energy losses. As a result, quality ventilation is vital. On average, a tightly built house has a slightly lower pressure relative to the outside. The signal to the 200DX Main Control is 0-10Vdc. **This pressure device is not intended to compensate for make-up air conditions**, but rather provides greater control over relative building pressure. Lower indoor pressure allows outdoor air to be pulled in through unintentional leaks in the building shell potentially containing excess amounts of heat cold, humidity and contaminants. A balanced or slightly positive indoor air pressure will minimize the amount of harmful contaminants (both harmful for occupants and the structure). Using the pressure transmitter option is an effective method to prevent mold growth inside the wall cavities and the building structure.

The **RecoupAerator®** is equipped with two blower motors, one controlling incoming air (Blower 1), and one controlling exhaust air (Blower 2). When the unit senses a negative indoor pressure, Blower Motor 2 will reduce airflow using a patented algorithm as necessary and attempt control to the pressure set point selected.

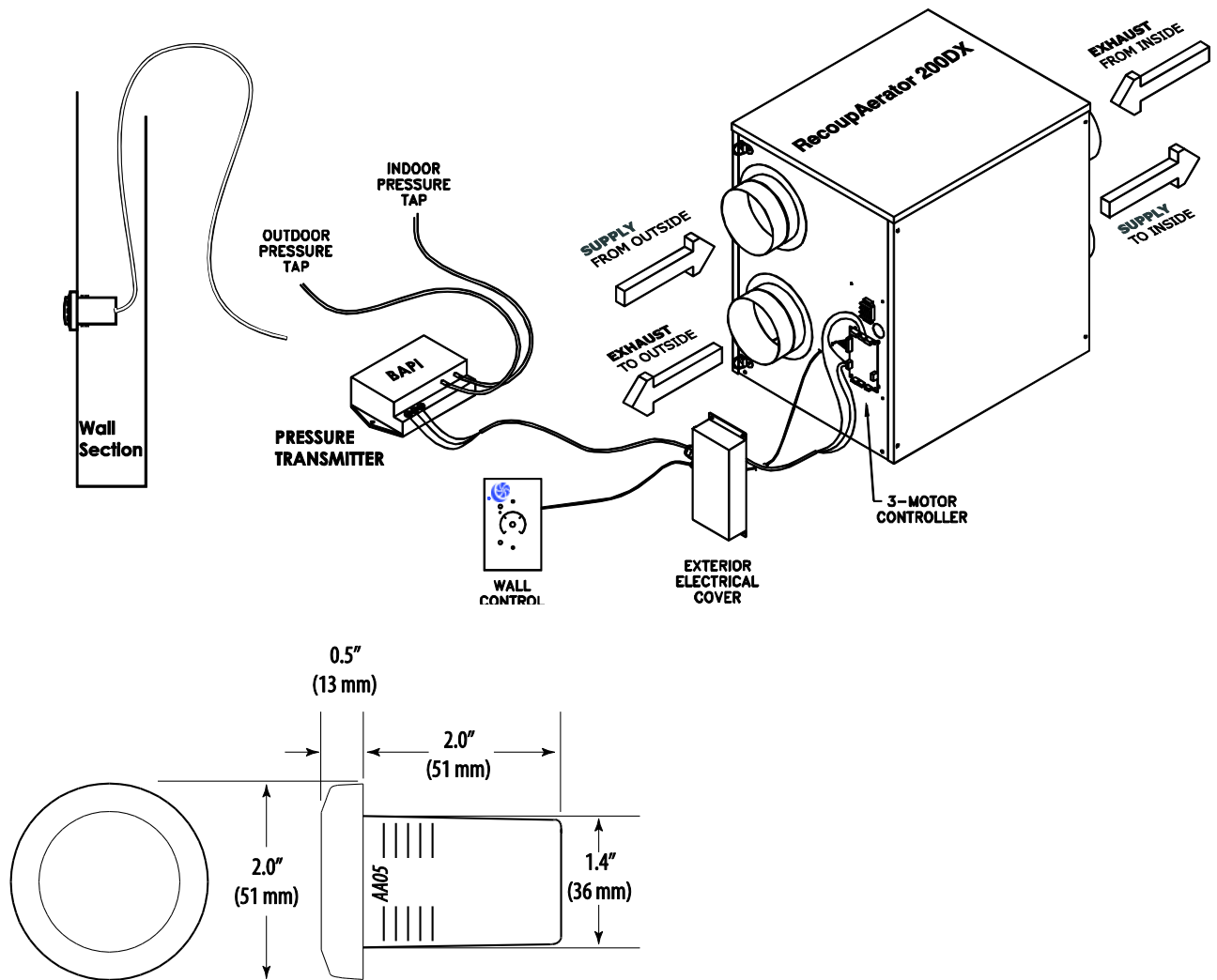
*Note: The ability of the **RecoupAerator®** to maintain or control the pressure differential is directly dependant on the overall amount of negative/positive pressure it must overcome.*

Setup: Pressure Transmitter

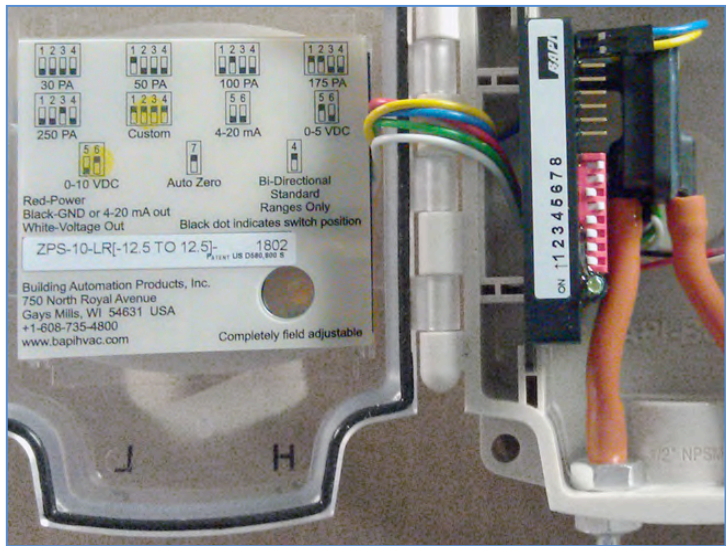
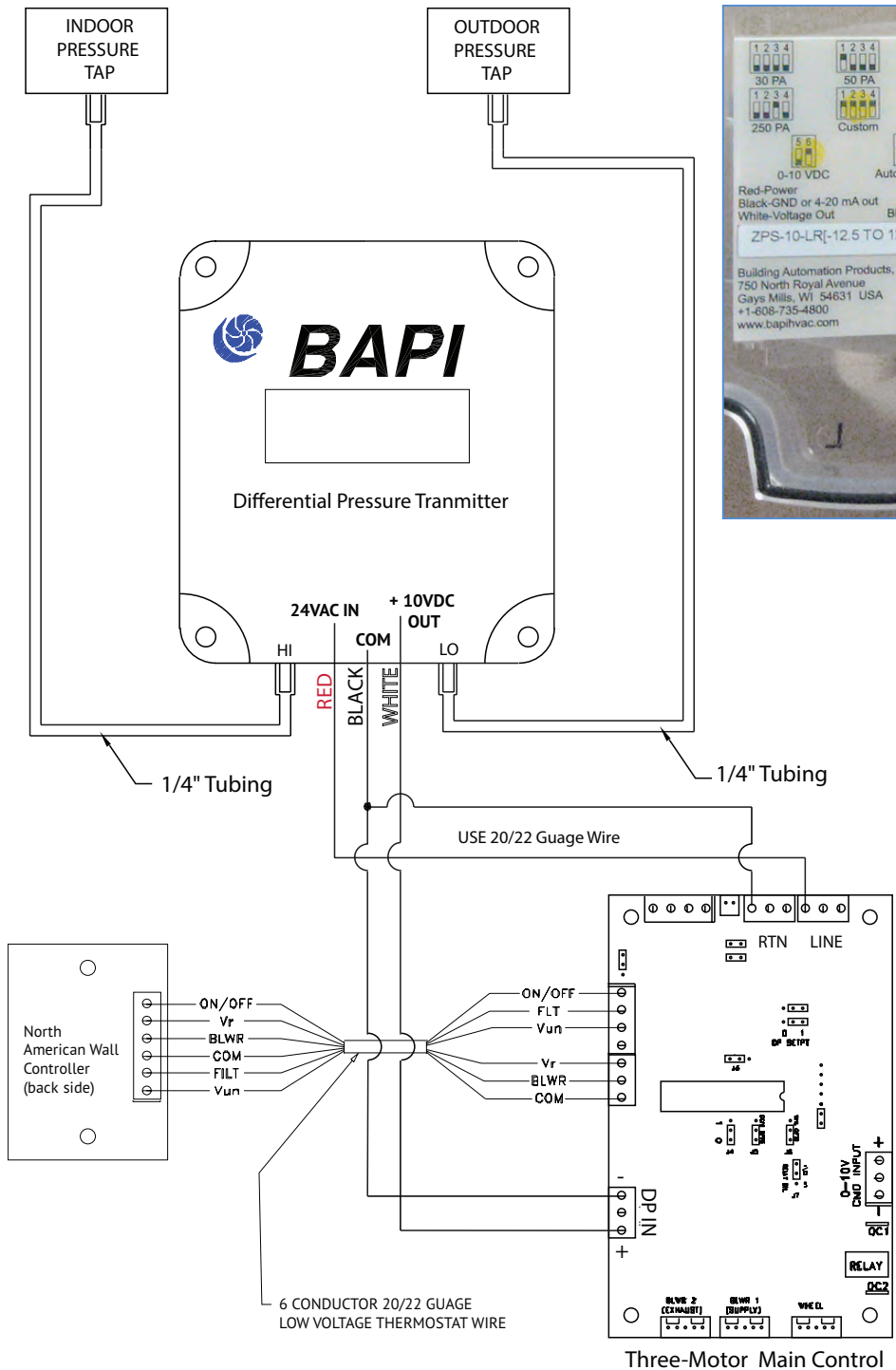
Install the pressure transmitter in a conditioned space in the most convenient location for wiring to the **RecoupAerator®**, and connecting to the pressure taps. The transmitter may be screwed to a wall, floor joist, or any indoor stationary location. The Pressure Transmitter includes two pressure taps (static pickup tubes).

The Indoor Pressure Tap- HI port on Transmitter- mounted to an interior wall which is considered to be the most central open point in the residence.

The Outdoor Pressure Tap- LOW port on Transmitter- located on a wall exposed to the outdoor environment. A garage, crawl space or attic are good locations, so long as these spaces are open to the outside and not considered part of the conditioned envelope. Avoid mounting the outdoor pressure tap in a windy location.



**Flexible or non-flexible 1/4 inch tubing may be used.
Connect HI to the indoor pressure tap, and LO to outdoor tap.**



**Wiring - Pressure Transmitter and RecoupAerator[®] Main Board (Three-Motor Control)
Programmed for Pressure Control**

Setup: *RecoupAerator*® Main Control Board (3motor-controller)

The Main Control Board is located inside the 110vac Power Connection Box mounted on the *RecoupAerator*®, and is programmed specifically for use with the BAPI Pressure Transmitter.

Select Pressure Set Point on the *RecoupAerator*® Main Control Board (3motor-controller)

While wiring to the *RecoupAerator*® Main Control, consider what pressure differential you want the *RecoupAerator*® to maintain*, then change the jumper positions according to the diagram below. The objective is to keep humidity from entering the wall cavities. For the *RecoupAerator*® to have pressure influence, the unit should be run continuously set at a flow above medium.

Set Point = 0 Pa

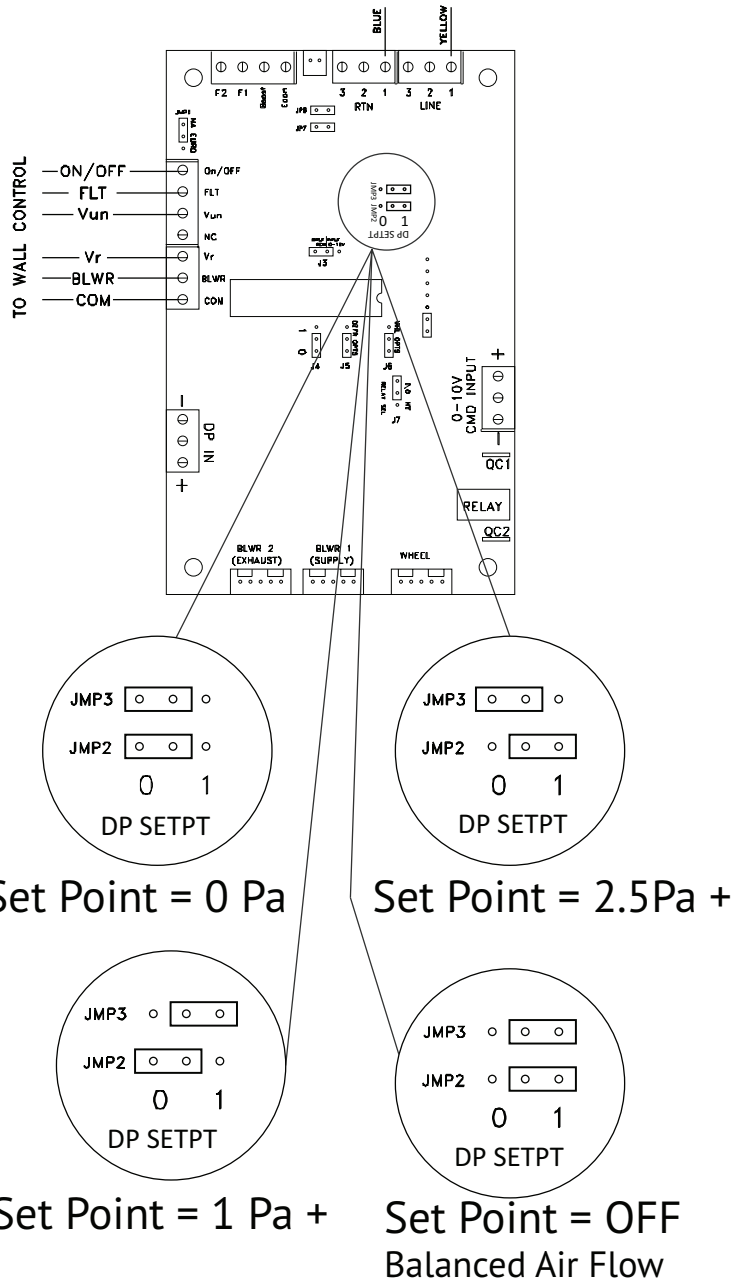
Zero pressure differential for most installations because humidity levels oscillate from inside to outside during the year in any given climate. The 200DX will still adjust the blower flow to maintain the 0Pa relative to outside.

Set Point = 1 or 2.5 Pa +

If the climate has a higher year-round outdoor humidity

Set Point = OFF

Air flow is Balanced (Factory Default)- Jumpers in the 'off' position disable the BAPI Pressure Control and allow the *RecoupAerator* to operate as a balanced airflow system



Operation and Testing:

Operate the RecoupAerator as normal, but please keep in mind the most effective pressure offset will occur at midrange and higher flow rates set on the Wall Dial. A lower flow rate will result in lower possible pressure influence.

Boost Mode will override the Pressure Transmitter. This means the **RecoupAerator**[®] ignores the Pressure Transmitter when Boost is activated and the two blowers will run with equal max air flow.

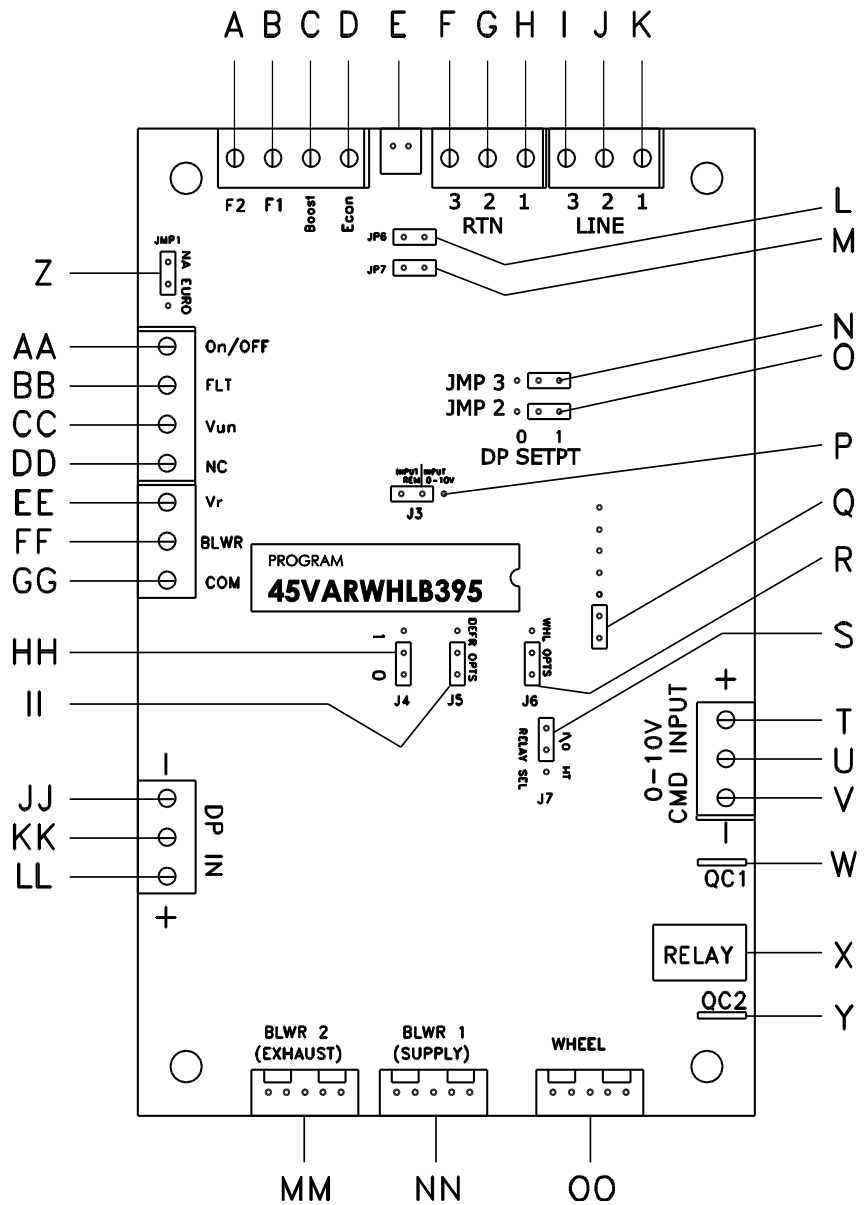
Sudden changes in pressure will not cause instantaneous changes in flow by the **RecoupAerator**[®]

The BAPI Pressure Transmitter tracks and records indoor/outdoor pressure changes over 10 minute intervals. The signal to the **RecoupAerator**[®] Main Control ranges from 0-10Vdc. A 5Vdc signal to the DP-IN terminal on the **RecoupAerator**[®] Main Control means balanced pressure inside to outside being measured by the BAPI transmitter. A signal voltage above or below 5V tells the **RecoupAerator**[®] to make the necessary adjustments to the exhaust airflow in 8CFM steps every 10 minutes. With approximately 18 steps to the largest offset flow rate.

Rough Testing for pressure correction by the **RecoupAerator**[®] may be possible by feeling for a flow difference with a hand in the airstream at the exhaust relative to supply ducts.

Accurate measurement of air flow rate changes can only be tested and verified with proper duct pressure gauges mounted in the duct work.

The **RecoupAerator**® Main Control Board is Programmed Specifically for use with the BAPI Pressure Transmitter
Please use this **RecoupAerator**® Main Control Board for reference



**Main Control Board (Three-motor controller)
Programmed for use with BAPI Pressure Transmitter**

- A. F2: Wiring input from furnace. 24 VAC common (in some cases “C” post from thermostat wiring on the furnace). If wiring to furnace, REMOVE jumpers at L and M.
- B. F1: Wiring input from furnace. 24 VAC line (in some cases “G” post from thermostat wiring on the furnace). If wiring to furnace, REMOVE jumpers at L and M.
- C. Boost input. When this post receives a 24 VAC signal (from I, J, or K), the unit will be turned on, and commanded to high speed (max air flow).
- D. EconoCool input: When this post receives a 24 VAC signal (from I, J, or K), the EconoCool function will be enabled. See EconoCool in this manual for further information.

- E. Temperature thermistor input. Temperature information from the temperature thermistor located in the incoming air stream (duct 1) is fed to the controller through this input.
- F. RET 3: 24 VAC return post. Common terminal from the internal transformer.
- G. RET 2: 24 VAC return post. Common terminal from the internal transformer.
- H. RET 1: 24 VAC return post. Common terminal from the internal transformer.
- I. LINE 3: 24 VAC line post. Line voltage from the internal transformer.
- J. LINE 2: 24 VAC line post. Line voltage from the internal transformer.
- K. LINE 1: 24 VAC line post. Line voltage from the internal transformer.
- L. JP6: Jumper connecting 24 VAC line voltage from internal transformer to F1.
- M. JP7: Jumper connecting 24 VAC return from internal transformer to F2.
- N. JMP3: Offset / DP Set point jumper. Selects the pressure differential between the inside and outside that the ERV will try to maintain.**
- O. JMP2: Offset / DP Set point jumper. Selects the pressure differential between the inside and outside that the ERV will try to maintain.**
- P. J3: Control Input jumper. Selects control input from either the remote wall controller, or a 0-10V DC input voltage (at T and V).
- Q. Programming jumper. Must be in place for unit operation.
- R. J6: Wheel Options. Selects control for heat wheel rotation. (default '0' position)
- S. J7: Relay selection. This jumper selects whether the normally open relay (X) closes when the unit turns on (position I/O), or when the temperature thermistor reads below 10°F (position HT). Default is position I/O.
- T. 0-10V DC input post. When J3 is in the 0-10V position, this post accepts the positive line voltage 0-10V DC command from an outside control source.
- U. Not connected. Empty socket.
- V. 0-10V DC input post. When J3 is in the 0-10V position, this post accepts the negative side 0-10V DC command from an outside control source.
- W. QC1: Quick Connect 1. Used as an auxiliary output control option. QC1 will be electrically connected to QC2 when the relay (X) is closed. Max rating: 1A@24VAC.
- X. Low voltage pilot duty relay. Normally open. Closes according to selection made at J7 (S). Default: closes when the ERV is turned on.
- Y. QC2: Quick Connect 2. Used as an auxiliary output control option. QC2 will be electrically connected to QC1 when the relay (X) is closed. Max rating: 1A@24VAC.
- Z. JMP1: Remote control input selection. Default wall controller in the North American remote wall control (NA position). J3 (P) must be in the REM INPUT position. When J3 is in the 0-10V position, JMP1 MUST be in the EU position for the 0-10V input to work.
- AA. On/Off terminal. For wiring to mating terminal on NA wall controller.
- BB. FLT terminal. For wiring to mating terminal on NA wall controller.
- CC. Vun terminal. For wiring to mating terminal on NA wall controller.
- DD. NC terminal. Empty terminal. Do not wire to this terminal.
- EE. Vr terminal. For wiring to mating terminal on NA wall controller.
- FF. BLWR terminal. For wiring to mating terminal on NA wall controller.
- GG. COM terminal. For wiring to mating terminal on NA wall controller.
- HH. J4: Blower control jumper. Default is '0' position for CFM control.
- II. DEFR OPTS: Defrost Options jumper. Default position is the '0' position. Unit will be in defrost mode between 18°F - 8°F, and OFF when outside temperatures are below 8°F.
- JJ. DP IN: Delta pressure control input, negative side. Input from pressure transmitter.**
- KK. Not connected. Empty socket.
- LL. DP IN: Delta pressure control input, positive side. Input from pressure transmitter.**