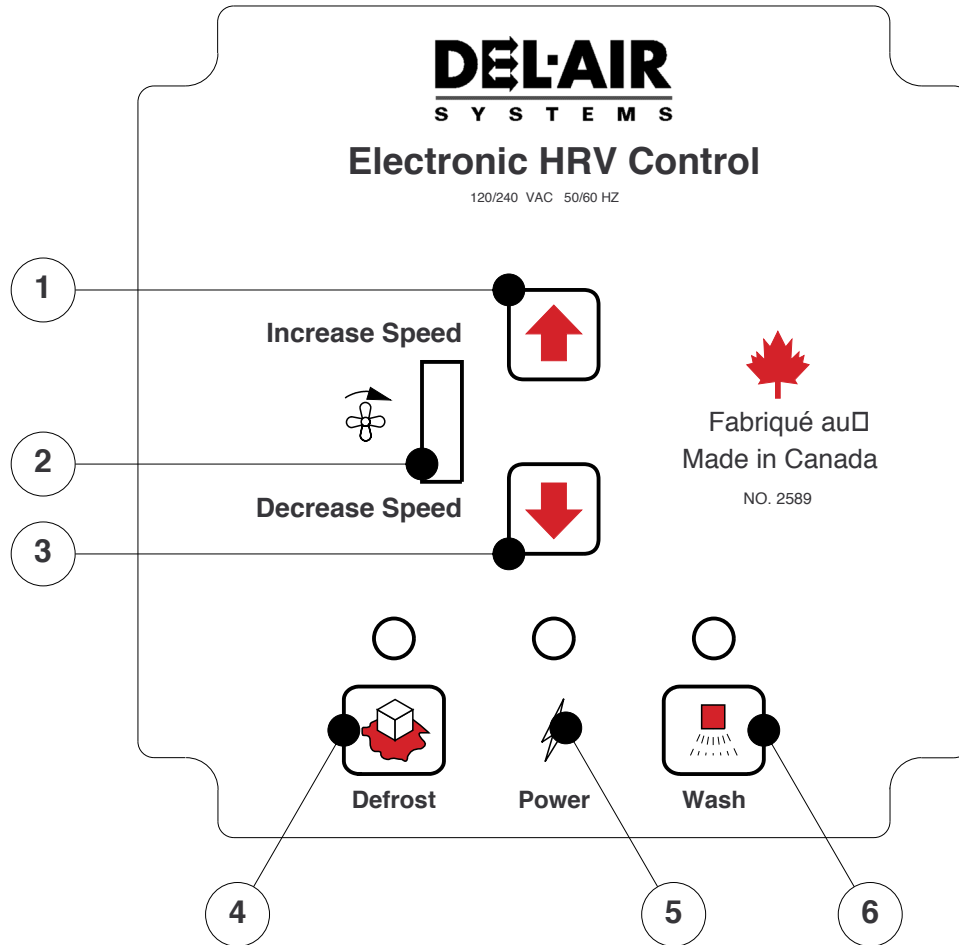
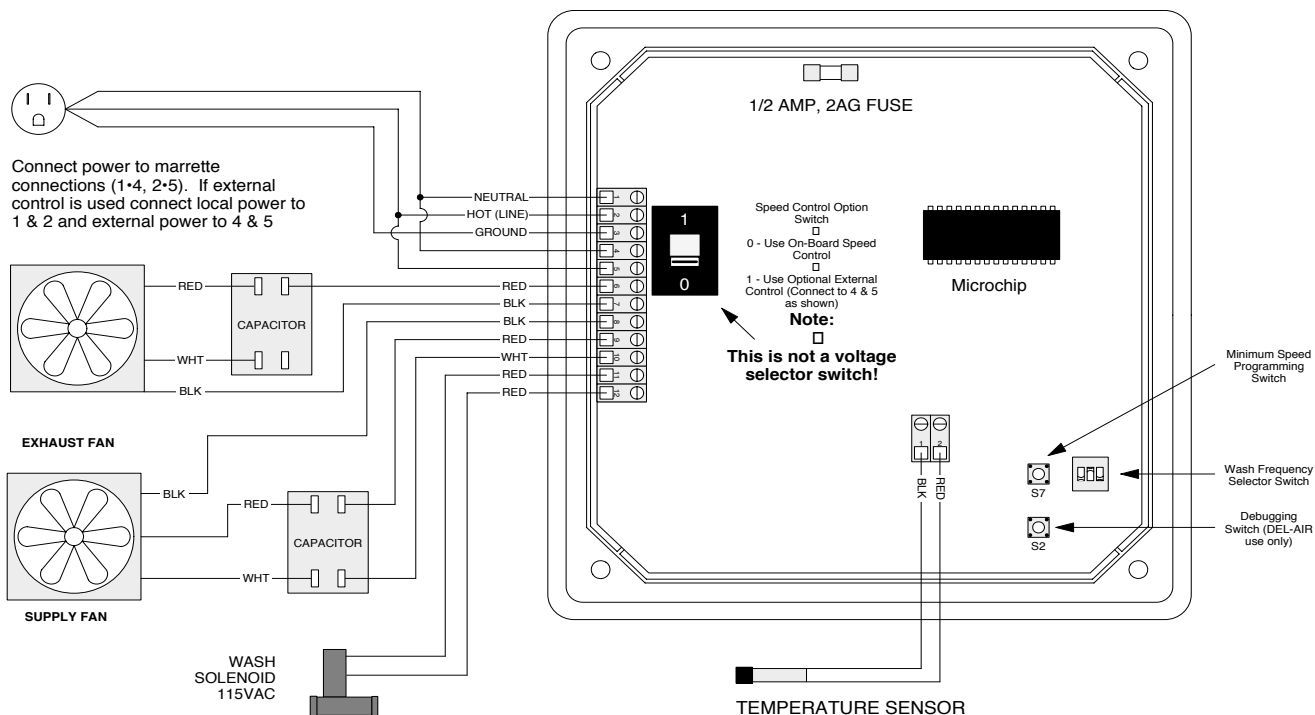


### INSTALLATION INSTRUCTIONS

V500CII-2/97



- (1) Press once to Increase Fan Speed by 5%
- (2) LED Bar Graph display of Fan Speed (5% Steps)
- (3) Press once to Decrease Fan Speed by 5%
- (4) Press to Start or Stop Manual Defrost Cycle
- (5) Power Indicator
- (6) Press to Start or Stop Wash Cycle (Energize Solenoid)



**Figure 1** Wiring Diagram

## INSTALLATION INSTRUCTIONS

1. If replacing an existing circuit board or other package, **DISCONNECT ALL POWER TO THE UNIT** before proceeding.
2. Remove any electrical components not shown on this wiring diagram.
3. Connect 115V Power to terminals 1 & 2 (use the marrette connections supplied) as shown in the wiring diagram. Connect Ground to terminal 3 if available.
4. **OPTIONAL:** If the heat exchanger is to be controlled by an external control (Such as a DEL-AIR Model 6000 or equivalent), connect the externally controlled lines to terminals 4 & 5 as shown in the wiring diagram (Also refer to the external control's manual). Set the Speed Control Option Switch to position 1 if you wish to have the external control operate the unit. Otherwise, to enable the internal speed control option, leave the switch in position 0.
5. Connect the exhaust motor to terminals 6 & 7 as shown in the wiring diagram.
6. Connect the supply (intake) motor to terminals 8, 9 (forward), and 10 (reverse) as shown in the wiring diagram.
7. Connect a 115V Solenoid to terminals 11 & 12 as shown in the wiring diagram.
8. Connect the temperature sensor to the small terminal block as shown in the wiring diagram. Make sure the polarity is correct (- black to 1, + red to 2).

## SETUP AND TESTING

Follow the steps below to verify that the unit is functioning properly and the wiring is correct. Should anything not perform as described please consult the troubleshooting section.

1. Plug in the power. The LED above the Power icon should light and both fans should start to turn. If the Speed Control Option Switch was set to position 0, pressing the increase button on the front panel should make the motors speed up. Similarly, pressing the decrease button should slow the motors down.
2. Press the manual defrost switch. The supply motor will be turned off for 15 seconds (to ensure it stops or slows to a safe speed before reversing), the defrost LED will light and the fan will start up in the reverse direction. The normal defrost cycle will be 8 minutes but it can be interrupted at any time by pressing the button again.
3. Press the wash button. The indicator LED should light and the solenoid should energize and allow water to pass through to the wash nozzle mounted above the core inside the unit. The normal wash cycle will be 1 minute but it can be interrupted at any time by pressing the button again.

## NORMAL OPERATION

The Electronic HRV Control is designed to automatically defrost and clean your heat exchanger as required to ensure that it will continue to operate at the maximum possible efficiency without requiring a lot of maintenance. Despite this, it is still recommended that the core be removed and fully cleaned manually once per year.

### Defrost on Temperature

Older HRVs with mechanical timers would defrost for 8 minutes out of every hour regardless of the outdoor temperature or condition of the core. The Electronic HRV Control is able to measure the temperature of the supply air and make an intelligent decision on whether the defrost cycle is needed or not. For example, when it is very cold outside, the heat transfer may not be enough to warm the incoming air up above the freezing point. As a result, moisture in the exhausted air may freeze and clog up the core. The temperature sensor will sense that the incoming air is below zero and will automatically trigger a defrost cycle.

**Note:** Regardless of the temperature, an automatic defrost cycle can not occur for more than 8 minutes out of each hour.

When it is warmer outside, the heat transfer may be enough to keep the supply air warmed above freezing and thus a defrost cycle may not be needed. As soon as the sensor measures a temperature below freezing it will trigger a defrost cycle.

**Note:** If no sensor is connected or if the sensor becomes damaged such that an open circuit is present the automatic defrost cycle will never occur. If the sensor is shorted out or if a jumper is used in place of the sensor, automatic defrost cycles will occur every hour.

### Wash Cycles

To ensure the core remains clean we have provided the ability to automatically turn on a water valve for 1 minute (approx. 3 gallons). The automatic wash cycle operates according to a timed cycle set by the Wash Frequency Selector Switch. You can set the circuit board to automatically wash every 8, 12, 24, or 48 hours. The factory default is set at once per day. If you want to wash more often or less often disconnect the power and change the dip switches according to Figure 2.

### Minimum Speed Setting

Most HRVs are used as minimum ventilation and should never be allowed to be turned off or run slower than a percentage given by your ventilation system designer. To program the minimum speed you must push and hold the Minimum Speed Programming Switch located on the back of the circuit board (S7) - the fans will slow down to the minimum speed setting currently stored. Continue to hold the switch while adjusting the speed using the arrows on



**Figure 2** Wash Frequency Settings

the front panel. Once the fans are operating at the desired minimum speed, release the switch. The fans will return to the speed they were at before the programming begun. Now you will only be able to slow the fans down to the speed you just programmed.

## TROUBLESHOOTING

**Power Light Off** - Check to make sure power is available at the outlet. Check the 1/2 Amp fuse on the circuit board and replace if necessary. If fuse blows again, inspect the wiring and contact your DEL-AIR representative if necessary.

**Power Light On, Fans don't run** - If speed indicator lights are not showing, press the increase speed button. If an external speed control is used, ensure that it is trying to operate the HRV and that the Speed Control Option Switch on the circuit board is set to position 1. If an external speed control is not used, ensure that the Speed Control Option Switch is set to position 0.

**Defrost does not occur** - Make sure sensor is connected properly as shown in the wiring diagram. Replace if necessary or short it out by connecting a jumper in its place.

**LED Graph bars on front have every second light lit** - this indicates that the sensor is "open" or disconnected. Check the sensor and replace if necessary.

**LED Graph bars flashing erratically** - Debug switch (S2) has been switched. Debug mode is used by the factory to test the board. In debug mode 1 hour is reduced to 1 minute. Press S2 again to exit debug mode.

## LIMITED WARRANTY

**DEL-AIR SYSTEMS LTD.** offers an additional "System Performance Guarantee™" to purchasers who take advantage of the free ventilation planning service. Contact your dealer for details, or call a Del-Air Sales Representative.

**DEL-AIR SYSTEMS LTD.** warrants to the purchaser the full repair or replacement value of any part proven to be defective in material or workmanship, for one year from date of original purchase.

### **OTHER EXTENDED WARRANTIES:**

**MOTORS - 3 year pro-rated.**

Full value in first year, 2/3 value in second year, 1/3 value in 3rd year.

**PLASTIC HOUSINGS - 10 year full value.**

**HRV CORES - 10 years full value.**

### **TERMS AND CONDITIONS**

1. The owner is obligated to exercise due care and attention in the installation and use of this product.
2. This warranty is applicable only to DEL-AIR ventilation systems installed for agricultural confinement livestock operations.
3. Parts replaced or repaired under this warranty are warranted only through the remainder of the original warranty.
4. This warranty does not cover cost of shipping defective or repaired or replaced parts to or from original customer.
5. DEL-AIR Systems Ltd. reserves the right to make changes and improvements to its products at any time with the express understanding that such changes and improvements do not impose any obligation to install such changes and improvements on products previously sold.

This Product was  
Quality-Assured by:

#### **DEL-AIR SYSTEMS LTD.**

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