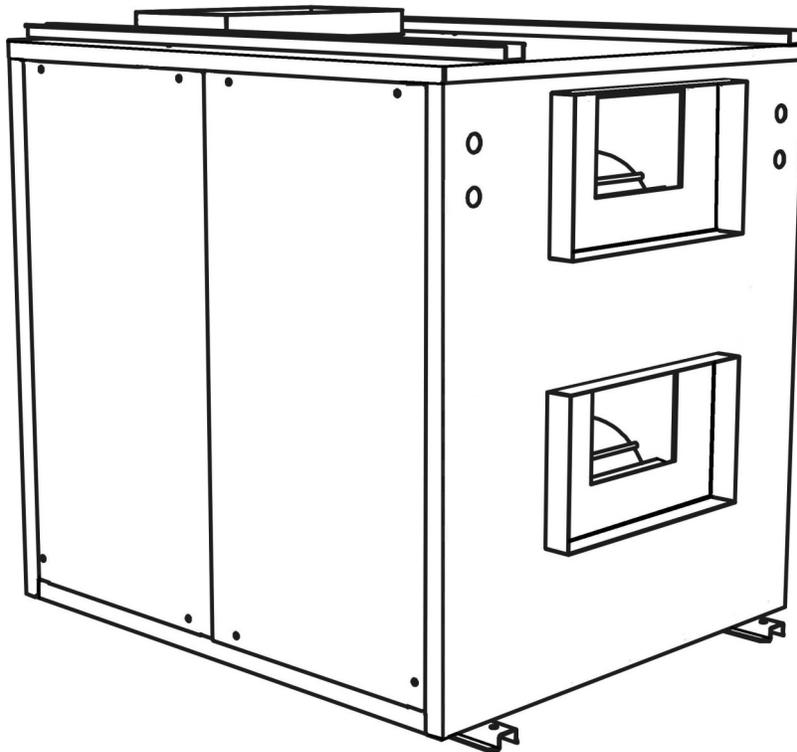


LIFEBREATH®

WWW.LIFEBREATH.COM

Operation and Installation Manual



Models

330ERV
530ERV
730ERV
1230ERV

Commercial Energy Recovery Ventilators (ERV)



69-ComERV

032717

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⚠ CAUTION

Assess how the operation of an ERV may interact with already installed vented combustion equipment (ie. Gas Furnaces, Oil Furnaces, Wood Stoves, etc.).

⚠ ATTENTION

Do not apply electrical power to the unit until installation has been fully completed (including low voltage control wiring).

⚠ CAUTION

Never install an ERV in a situation where its normal operation, lack of operation or partial failure may result in the backdrafting or improper functioning of vented combustion equipment!

Leave this manual with your customer!

TO BE COMPLETED BY CONTRACTOR AFTER INSTALLATION

Installing Contractor

Telephone / Contact

Serial Number

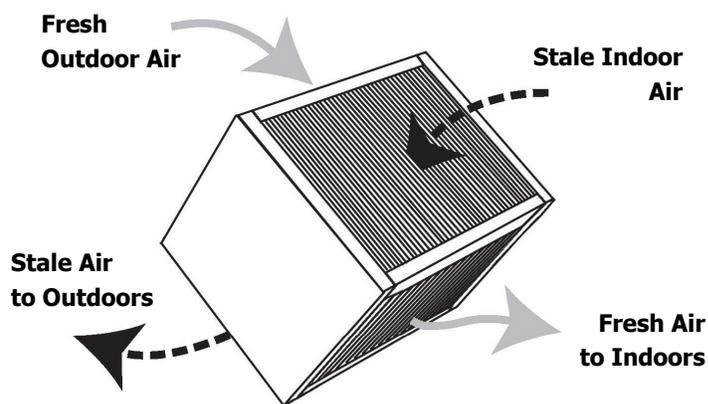
Installation Date Model

The Benefits of ERVs

Energy Recovery Ventilators (ERV) are designed to supply fresh air to a building while exhausting an equal amount of stale air from the building. An energy savings is experienced during the process by reducing the heating (or cooling) requirements.

ERV - Enthalpic Paper Core

An ERV is designed for use in warm humid areas with heavy air conditioning use. The ERV will transfer both sensible and latent heat from the incoming fresh air to the outgoing stale air thereby reducing the load (due to ventilation) on the air conditioning system.



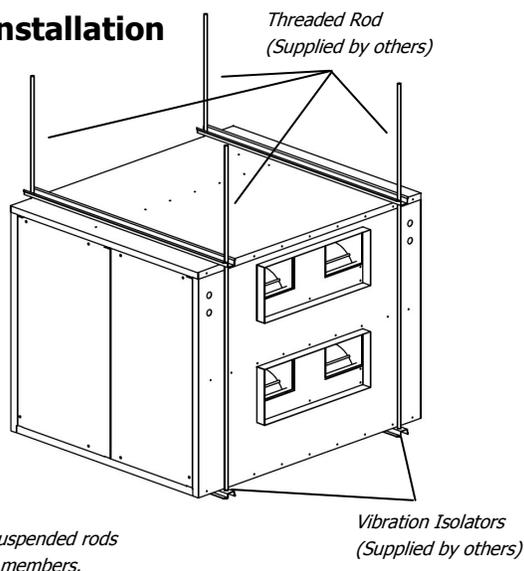
Location of the ERV for Mounting

The ERV must be located in a heated space where the surrounding air temperature does not fall below 60°F (16°C). The unit must be mounted level (horizontal) to obtain proper drainage of water from the heat exchange element and drip pans. The warranty will be void if these conditions are not met.

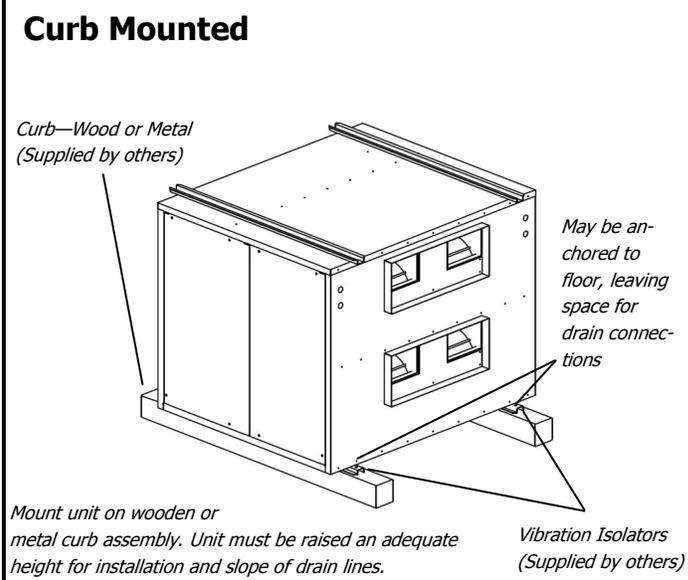
Typically, the ERV is positioned close to an outside wall or the roof to simplify the connections and keep the length of insulated ducting required for the fresh air intake to a minimum.

A minimum clearance of 30 inches (76 cm) in front of the ERV is recommended to service the heat exchanger cores and the filters. The ERV may be mounted on an equipment platform providing the drain hoses are clear and there is sufficient space to open the doors for servicing.

Saddle Installation



Curb Mounted



! ATTENTION

Flexible duct connectors should be installed between the ERV and the galvanized ductwork.



ENGINEERING DATA

TOTAL RECOVERY CORE

The cross-flow energy recovery core transfers heat and water vapour between the two airstreams. It is easily removed for cleaning or service.

MOTORS

Two PSC, 3 speed single shafted, 120 VAC, 1.92 Amps each (3.8 total on high speed). HP - 1/6, 1625 RPM. MCA: 4.8 MOP: 15 Watts - total on high speed - 437.

FILTER

2" pleated MERV 8 filter in supply and exhaust air streams.

BLOWERS

Slide easily in / out of unit. Centrifugal type rated at 500 CFM (236 L/s) free air delivery. Each air stream has one single shafted motor driving a centrifugal blower.

CONNECTION DUCT SIZES - Four - 8" x 8" (200 mm x 200 mm).

MOUNTING

Unit to be set on support brackets hung by threaded rod type apparatus (brackets and rods not provided).

CABINET

Unit has front and back access doors and electrical panel can be switched to either side giving installer flexibility in duct direction. 20 gauge pre-painted galvanized steel (G60) for superior corrosion resistance. Insulated with foil faced insulation where required to prevent exterior condensation.

ELECTRONICS

Integrated microprocessor circuit board. Built-in interlock contacts. Optional remote speed control.

FROST PREVENTION

Temperature sensor activated, periodically shuts down supply motor. Drains not required.

WEIGHT 120 LBS (54 KG) **SHIPPING WEIGHT** 150 LBS. (68 KG)

CONTROL OPTION

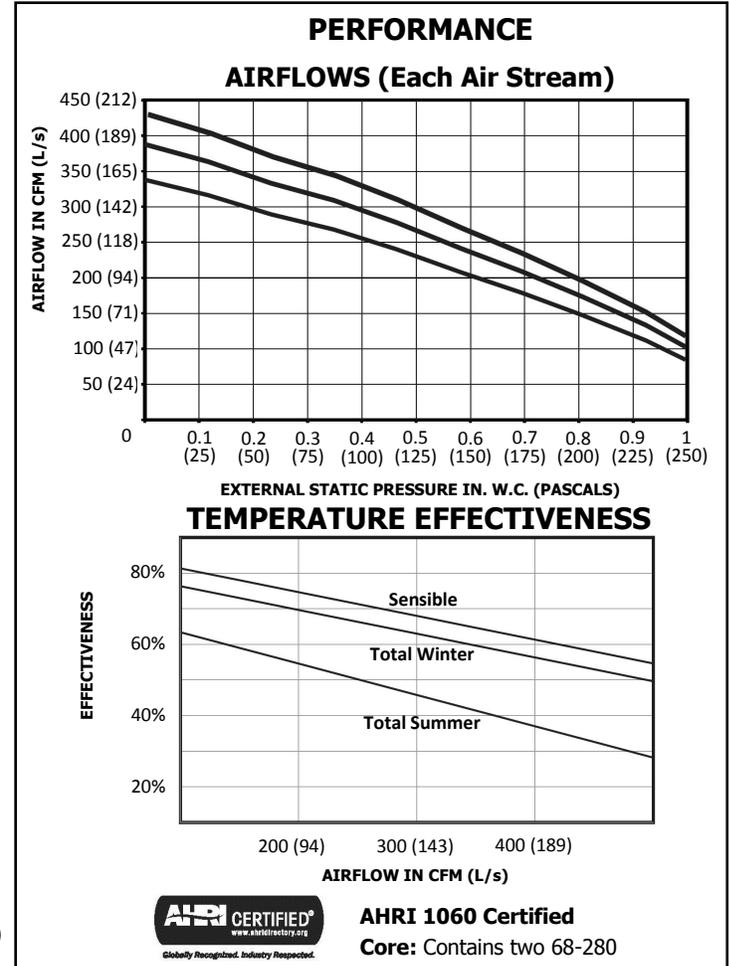
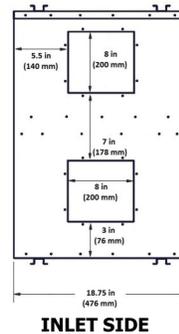
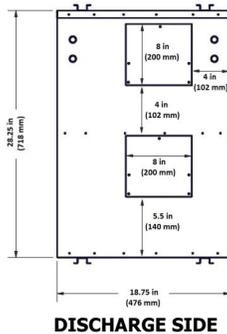
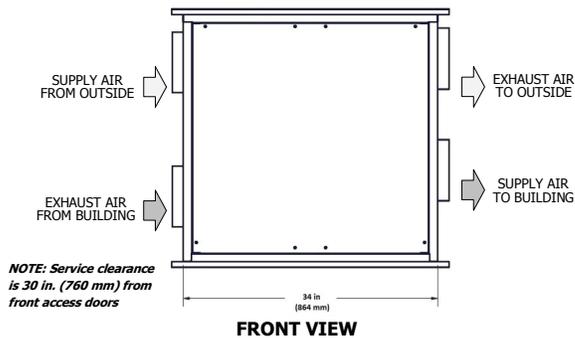
99-BC04 Lifebreath Ventilation Control

- 2 speed fan setting (Low/High)
- 2 modes of operation: Ventilation, 20/40
- Compatible with 99-DET02 Wireless Timers
- 3 wire connection; 20 gauge wire (minimum)

WARRANTY

Units carry a 10 year warranty on the ERV core and a 2 year replacement parts warranty.

DIMENSIONS inches (mm)



TIMER OPTIONS

99-DET01 Lifebreath 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- 3 wire connection; 20 gauge wire (minimum)

99-DET02 Lifebreath WIRELESS 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- Wirelessly connects to main control for ease of installation
- 40' approximate range

99-RX02 Lifebreath WIRELESS Repeater

- Used to extend range of 99-DET02 Wireless Timers when Timers are out of range
- Plugs into 120V power outlet and wirelessly connects to main control and 99-DET02

NOTE: The 330ERV model may easily be reversed in the field. Refer to page 21 for installation instructions.

All units conform to CSA and UL standards

NOTE: All specifications are subject to change without notice.

Date: _____
 Tag: _____ Qty: _____
 Project: _____
 Engineer: _____

Contractor: _____
 Supplier: _____
 Quote #: _____
 Submitted by: _____



ENGINEERING DATA

TOTAL RECOVERY CORES

The cross-flow energy recovery cores transfer heat and water vapour between the two airstreams. They are easily removed for cleaning or service.

MOTORS

Two PSC, 2 speed single shafted, 120 VAC, 4.5 Amps each (9 total on high speed). HP- 1/4, 1450 RPM. MCA: 11.3 MOP: 15 Watts - total on high speed - 1032.

FILTERS

2" pleated MERV 8 filters in supply and exhaust air streams.

BLOWERS

Slide easily in / out of unit. Centrifugal type rated at 700 CFM (329 L/s) free air delivery. Each air stream has one single shafted motor driving a centrifugal blower.

CONNECTION DUCT SIZES - Four - 14" x 8" (356 mm x 200 mm).

MOUNTING

Unit to be set on support brackets hung by threaded rod type apparatus (brackets and rods not provided).

CABINET

Unit has front and back access doors and electrical panel can be switched to either side giving installer flexibility in duct direction. 20 gauge pre-painted galvanized steel (G60) for superior corrosion resistance. Insulated with foil faced insulation where required to prevent exterior condensation.

ELECTRONICS

Integrated microprocessor circuit board. Built-in interlock contacts. Optional remote speed control.

FROST PREVENTION

Temperature sensor activated, periodically shuts down supply motor. Drains not required.

CONTROL OPTION

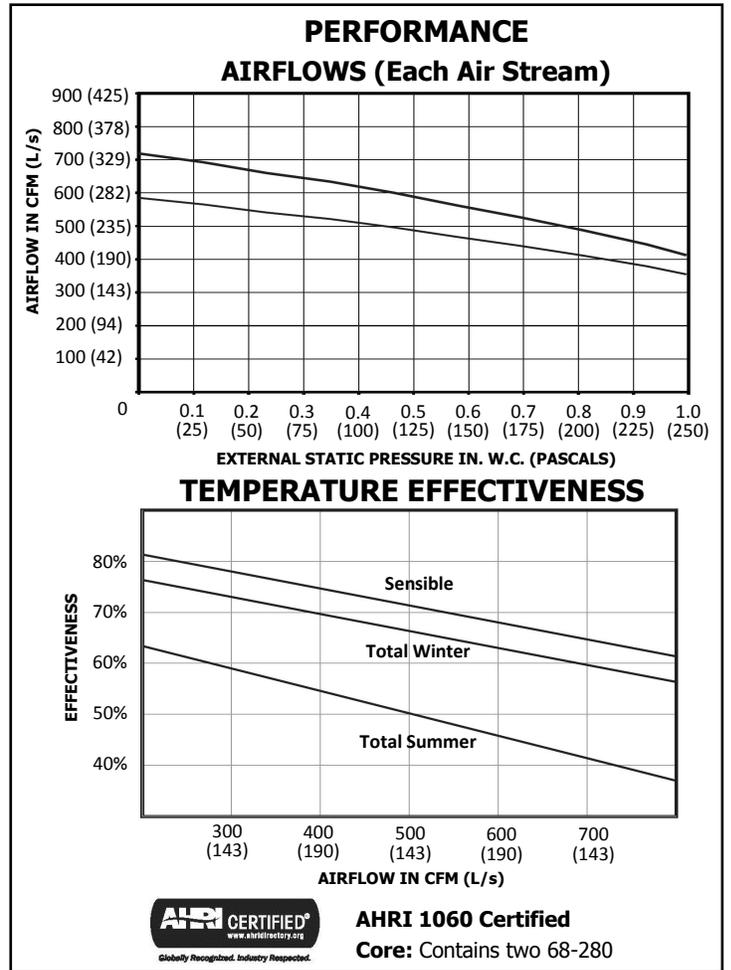
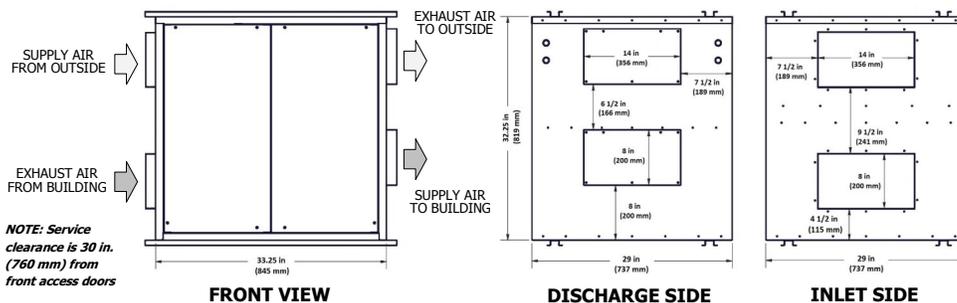
99-BC04 Lifebreath Ventilation Control

- 2 speed fan setting (Low/High)
- 2 modes of operation: Ventilation, 20/40
- Compatible with 99-DET02 Wireless Timers
- 3 wire connection; 20 gauge wire (minimum)

WARRANTY

Units carry a 10 year warranty on the ERV core and a 2 year replacement parts warranty.

DIMENSIONS inches (mm)



WEIGHT

TIMER OPTIONS

99-DET01 Lifebreath 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- 3 wire connection; 20 gauge wire (minimum)

99-DET02 Lifebreath WIRELESS 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- Wirelessly connects to main control for ease of installation
- 40' approximate range

99-RX02 Lifebreath WIRELESS Repeater

- Used to extend range of 99-DET02 Wireless Timers when Timers are out of range
- Plugs into 120V power outlet and wirelessly connects to main control and 99-DET02

NOTE: The 530ERV model may easily be reversed in the field. Refer to page 21 for installation instructions.

All units conform to CSA and UL standards

NOTE: All specifications are subject to change without notice.

Date: _____
 Tag: _____ Qty: _____
 Project: _____
 Engineer: _____

Contractor: _____
 Supplier: _____
 Quote #: _____
 Submitted by: _____



ENGINEERING DATA

TOTAL RECOVERY CORES

The cross-flow energy recovery cores transfer heat and water vapour between the two airstreams. They are easily removed for cleaning or service.

MOTORS

Two PSC, 3 speed single shafted, 120 VAC, 4.5 Amps each (9 total on high speed). HP- 1/4, 1450 RPM. MCA: 11.3 MOP: 15 Watts - total on high speed - 1032.

FILTERS

2" pleated MERV 8 filters in supply and exhaust air streams.

BLOWERS

Slide easily in / out of unit. Centrifugal type rated at 700 CFM (329 L/s) free air delivery. Each air stream has one single shafted motor driving a centrifugal blower.

CONNECTION DUCT SIZES - Four - 14" x 8" (356 mm x 200 mm).

MOUNTING

Unit to be set on support brackets hung by threaded rod type apparatus (brackets and rods not provided).

CABINET

Unit has front and back access doors and electrical panel can be switched to either side giving installer flexibility in duct direction. 20 gauge pre-painted galvanized steel (G60) for superior corrosion resistance. Insulated with foil faced insulation where required to prevent exterior condensation.

ELECTRONICS

Integrated microprocessor circuit board. Built-in interlock contacts. Optional remote speed control.

FROST PREVENTION

Temperature sensor activated, periodically shuts down supply motor. Drains not required.

CONTROL OPTION

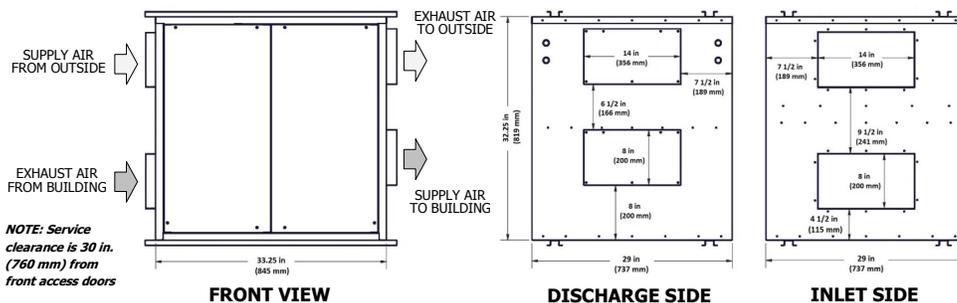
99-BC04 Lifebreath Ventilation Control

- 2 speed fan setting (Low/High)
- 2 modes of operation: Ventilation, 20/40
- Compatible with 99-DET02 Wireless Timers
- 3 wire connection; 20 gauge wire (minimum)

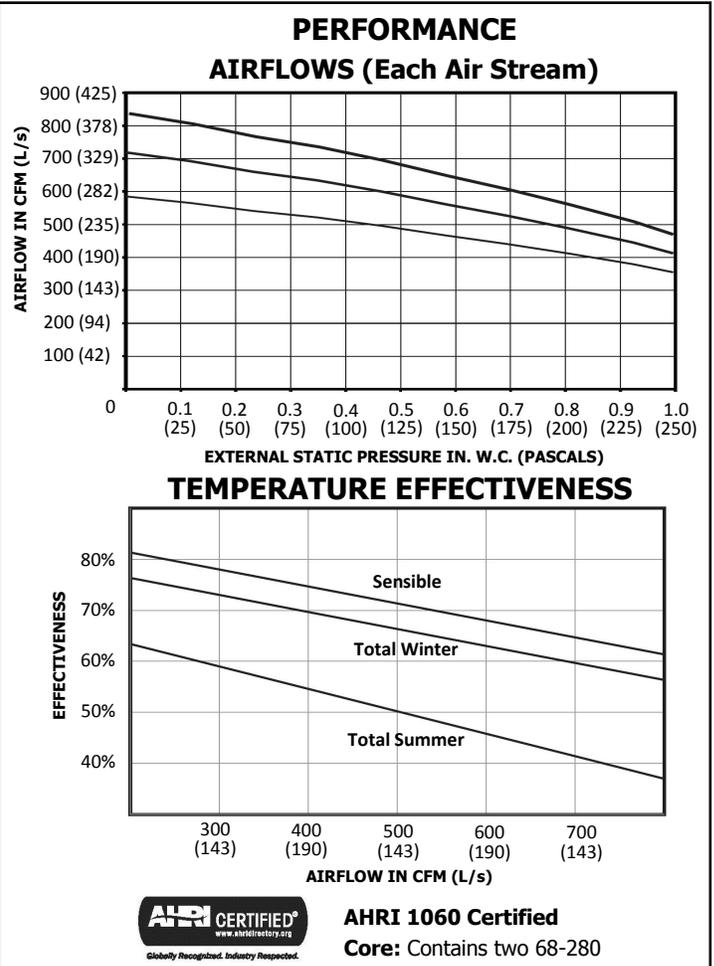
WARRANTY

Units carry a 10 year warranty on the ERV core and a 2 year replacement parts warranty.

DIMENSIONS inches (mm)



Date: _____
 Tag: _____ Qty: _____
 Project: _____
 Engineer: _____



TIMER OPTIONS

99-DET01 Lifebreath 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- 3 wire connection; 20 gauge wire (minimum)

99-DET02 Lifebreath WIRELESS 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- Wirelessly connects to main control for ease of installation
- 40' approximate range

99-RX02 Lifebreath WIRELESS Repeater

- Used to extend range of 99-DET02 Wireless Timers when Timers are out of range
- Plugs into 120V power outlet and wirelessly connects to main control and 99-DET02

NOTE: The 730ERV model may easily be reversed in the field. Refer to page 21 for installation instructions.

All units conform to CSA and UL standards

NOTE: All specifications are subject to change without notice.

Contractor: _____
 Supplier: _____
 Quote #: _____
 Submitted by: _____



ENGINEERING DATA

TOTAL RECOVERY CORES

The cross-flow energy recovery cores transfer heat and water vapour between the two airstreams. They are easily removed for cleaning or service.

MOTORS

Two PSC, 3 speed double shafted, 120 VAC, 9.4 Amps each (18.8 total on high speed). HP- 1/2, 1625 RPM. MCA: 23.5 MOP: 30 Watts - total on high speed - 2256.

FILTERS

2" pleated MERV 8 filters in supply and exhaust air streams.

BLOWERS

Slide in / out easily of unit. Centrifugal type rated at 1200 CFM (566 L/s) free air delivery. Each air stream has one single shafted motor driving a centrifugal blower.

CONNECTION DUCT SIZES - Four - 20" x 8" (508 mm x 200 mm).

MOUNTING

Unit to be set on support brackets hung by threaded rod type apparatus (brackets and rods not provided).

CABINET

Unit has front and back access doors and electrical panel can be switched to either side giving installer flexibility in duct direction. 20 gauge pre-painted galvanized steel (G60) for superior corrosion resistance. Insulated with foil faced insulation where required to prevent exterior condensation.

ELECTRONICS

Integrated microprocessor circuit board. Built-in interlock contacts. Optional remote speed control.

FROST PREVENTION

Temperature sensor activated, periodically shuts down supply motor. Drains not required.

WEIGHT 285 LBS (130 KG) **SHIPPING WEIGHT** 335 LBS. (152 KG)

CONTROL OPTION

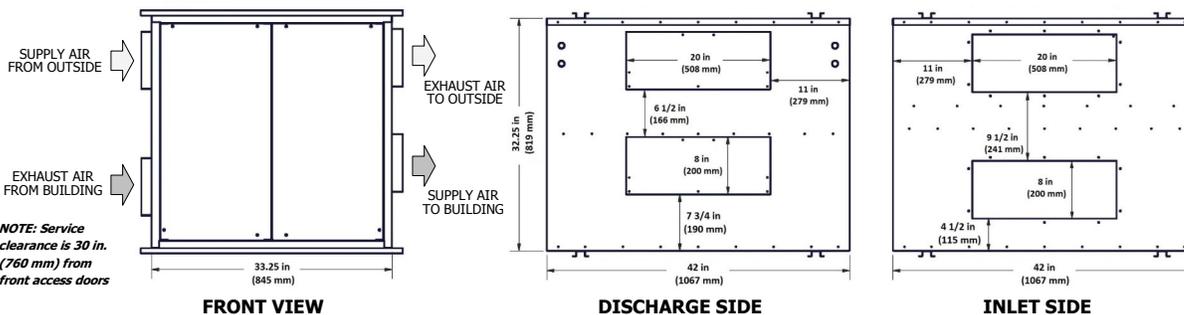
99-BC04 Lifebreath Ventilation Control

- 2 speed fan setting (Low/High)
- 2 modes of operation: Ventilation, 20/40
- Compatible with 99-DET02 Wireless Timers
- 3 wire connection; 20 gauge wire (minimum)

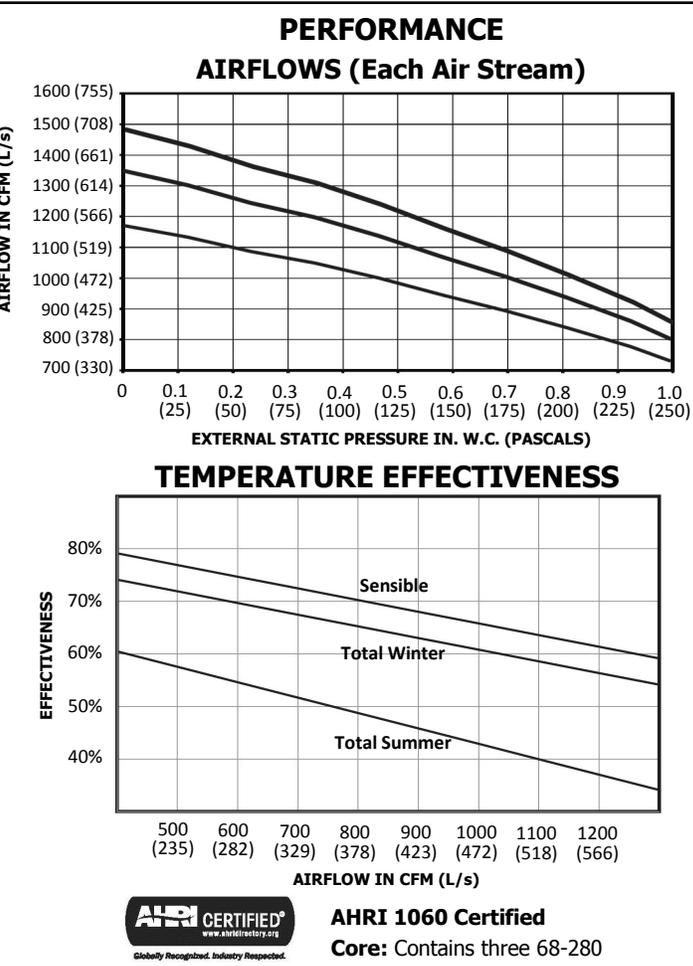
WARRANTY

Units carry a 10 year warranty on the ERV core and a 2 year replacement parts warranty.

DIMENSIONS inches (mm)



Date: _____
 Tag: _____ Qty: _____
 Project: _____
 Engineer: _____



TIMER OPTIONS

99-DET01 Lifebreath 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- 3 wire connection; 20 gauge wire (minimum)

99-DET02 Lifebreath WIRELESS 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- Wirelessly connects to main control for ease of installation
- 40' approximate range

99-RX02 Lifebreath WIRELESS Repeater

- Used to extend range of 99-DET02 Wireless Timers when Timers are out of range
- Plugs into 120V power outlet and wirelessly connects to main control and 99-DET02

NOTE: The 1230ERV model may easily be reversed in the field. Refer to page 21 for installation instructions.

All units conform to CSA and UL standards

NOTE: All specifications are subject to change without notice.

Contractor: _____
 Supplier: _____
 Quote #: _____
 Submitted by: _____

The Ductwork System

A properly designed ducting system will allow the ERV to operate at its maximum efficiency. (Air flow will be restricted by undersized ducting, use of too many elbows, tees, bends, etc.). Always try to keep duct runs as short and straight as possible.

NOTE: Fully insulated ducting with an integral vapor barrier must be used on all runs passing through unheated areas in order to avoid condensation problems and energy losses from the air streams.

All joints must be airtight, sealed and impervious to moisture. See specification sheets for each unit for exact duct sizes and location.

To minimize pressure drop and noise, galvanized metal ducts, properly sized, are recommended. Keep ducting as short as possible and use a minimum of elbows and tees.

Connecting sections and shorter runs may be flexible ducting one size larger than the metal equivalent. Use flexible duct connectors at the ERV to avoid noise transmission.

All duct joints must be secured with screws, rivets or duct sealant and sealed with aluminum duct tape to prevent leakage.

ATTENTION

Fully insulated ducting with an integral vapour barrier must be used on all runs passing through unheated areas in order to avoid condensation problems and energy losses from the air systems.

Outside Weatherhoods

The weatherhoods must have built-in "bird" screen with 1/4 in (6.35 mm) minimum mesh to prevent birds and rodents from entering into the ductwork. **Do not** use smaller mesh as it will be very susceptible to plugging up. Gravity dampers at the vents must not be used as they will restrict air flow and often "seize up". The preferred location of the outside weatherhoods is:

- no less than 10 ft. (3 m) apart from each other
- at least 18 in (46 cm) above snow line or ground level
- away from sources of contaminants, such as automobile exhaust fumes, gas meters, garbage cans, containers, etc.
- not exposed to prevailing winds

The outside perimeter of the weatherhood must be caulked to prevent leakage into the building.

The design and size of the weatherhoods or louvers chosen by the installer must allow for adequate free area. Water and debris penetration of the system is minimized when the airflow does not exceed 1000 FPM (5.08 m/s) free area velocity.

Ducting from the Weatherhoods

Galvanized sheet metal ducting with sufficient cross section with an integral single piece vapor barrier should be used to connect the ERV to the weatherhoods. **All ducting must meet UL Class 1 requirements.**

A minimum R value of insulation should be equal to 4 (RSI 0.75)

A good bead of high quality caulking (preferably acoustical sealant) and taping with a high quality aluminum foil tape is recommended to seal the duct to both the ERV and the weatherhood.

Stale Air Return System

The stale air return system is used to draw air from the points in the building where the worst air quality problems occur. Balancing dampers and/or adjustable grilles are recommended on all return air lines which are used during installation to help balance the "draw" from different areas of the building.

Alternately, the stale air may be drawn directly from the return air duct. When this system is used, the air handler's blower must constantly operate. The exhaust take-off connection must be at least 3 ft (1 m) from a directly connected ERV supply duct if both are connected to the same duct run. Note and compensate for the static pressure of the air handlers return system if the static pressure of the return in the air handler exceeds .1 to .15" W.C.

A damper located just prior to the ERV is required to balance the stale air exhausted with the fresh air supply entering the building.

Return air suction points should be located on the opposite side of the room from the fresh air inlet.

The inlets may be located in the ceiling or high on the walls and fitted with inlet grilles.

Many commercial activities produce air contaminants in the form of dusts, fumes, mists, vapors and gases. Contaminants should be controlled at the source so they are not dispersed through the building or allowed to increase to toxic concentration levels. The ventilator allows for economical operation of the HVAC system while effectively removing contaminants from the space. In designing the exhaust portion of the system the exhaust grilles are situated to remove the contaminants while not allowing them to enter the breathing zone of the occupants.

For contaminants lighter than air, grilles should be located high on the wall. If contaminants are heavier than air, a lower placement of the grilles will be required. Information on a contaminants specific gravity and toxicity should be available from chemical data sheets.

Fresh Air Supply System

The fresh air supply ductwork from the ERV may be directly connected to the return air duct of the forced air system. Check the air flow balance of the ERV with the air handler blower both "ON" and "OFF" to determine that it does not imbalance the ERV more than 10%. Also, it is advisable to include a short length of flex duct or other non-metallic connector in this hard ducted line in order to keep the ERV acoustically isolated and separately grounded (electrically) from the air handler. This will avoid a possible shock hazard to service people if a short to ground develops in one of the devices.

It may be necessary to install a separate fresh air supply ductwork system if the heating is other than forced air.

When installing an ERV, the designer and installer should be aware of local codes that may require smoke detectors and/or firestats in the HVAC or ERV ductwork.

Because an ERV is designed to bring fresh air into the building, structures may require supply voltage interrupt when smoke or flame sensors are triggered, or when a central fire alarm system is activated.

Supply air grilles may be ceiling or high wall mounted. Avoid locating incoming fresh air grilles that could cause a direct draft on the occupants as the incoming air may be below room temperature. A reheat duct heater can be installed to improve occupant comfort.

Adjustable Grilles

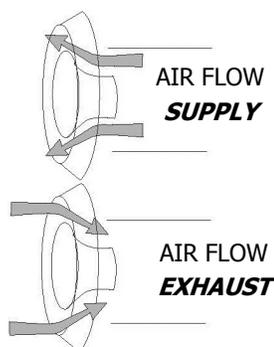
The use of balancing dampers or adjustable grilles as supply air diffusers and air exhaust covers are recommended. TECHGRILLES™ are round, efficient, sound absorbing devices available in 4", 5", 6" and 8" (100, 125, 150, and 200 mm) models.

Part# 99-EAG4 4" diameter Techgrille

Part# 99-EAG5 5" diameter Techgrille

Part# 99-EAG6 6" diameter Techgrille

Part# 99-EAG8 8" diameter Techgrille



The Integrated HVAC System

The ERV has become an integral component of the HVAC system. Figure A shows an ERV unit providing fresh air directly to the return air plenum of a rooftop heat/cool unit.

In the balanced airflow system, the ERV exhaust removes stale room air (eg. from lunch room, storage or copy area) and returns to the space an equal amount of fresh outdoor air, making the use of an economizer obsolete in conjunction with an ERV.

Many buildings have ceiling return air plenum as in Figure B. Fresh air from the ERV can be introduced directly into the ceiling space but this should occur near the air handler's intake.

By operating the ERV on a 24 hour / 7 day battery backed timer, the unit can be set to operate only when occupancy or indoor conditions require the air exchange.

In installations where it is satisfactory to provide general exhaust from the space, the air to be exhausted may be taken directly from the return air plenum to the ERV as it is drawn back to the air handler. Fresh air supplied by the ERV is then introduced directly into the return air plenum but at a location closer to the air handler. The air handler would have a constant running blower to effectively distribute the fresh air and remove the stale air. Balancing dampers would be located in both the ERV supply and exhaust ducts between the return air plenum and the ERV.

NOTE: At no time should the air handler T.E.S.P. on the return duct exceed that of the ERV.



CAUTION

When interlocking a rooftop unit with an ERV, take care to ensure the fans of both units operate in the correct rotation.

Figure A

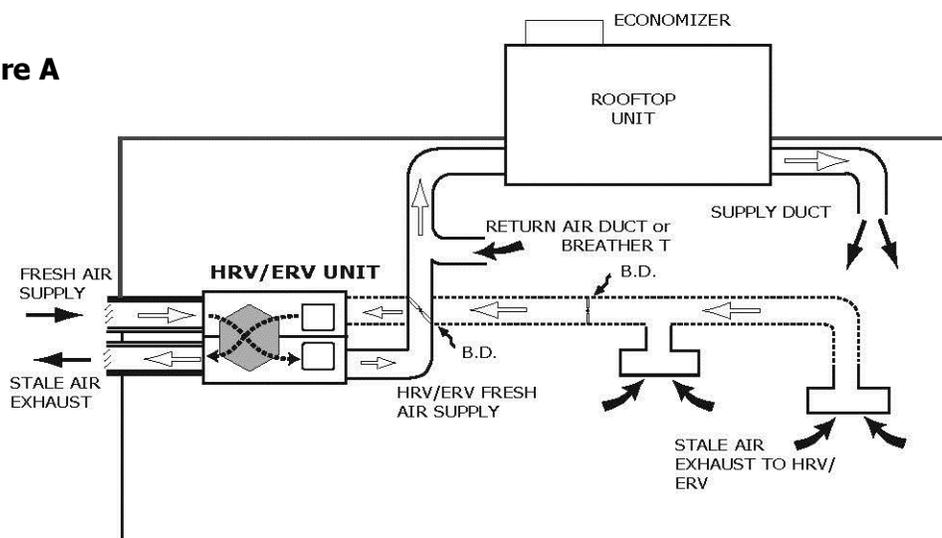
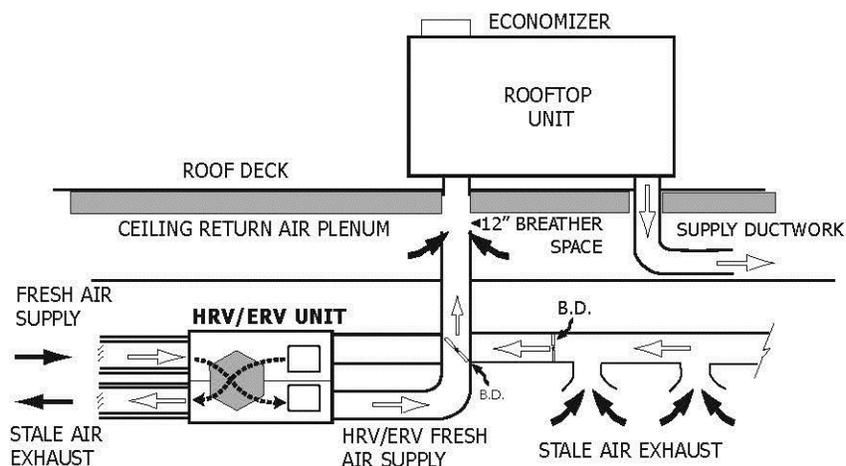


Figure B



Electrical Connections

Electrical Connections

It is recommended that a licensed electrician make all electrical connections. It is very important that the unit be properly grounded. The circuit must be sized to handle the F.L.A. indicated on the name tag for the circuit.

WARNING: Verify the polarity of the power coming into the unit with a test lamp or multimeter. Connect the multimeter or test lamp probe to the wire being tested and the other probe to ground. The black line should be "live". If the white line is "live" the polarity is reversed and must be corrected. If both lines are live, the voltage is not 120VAC. The black open line from the unit should be connected to the live line and the white open line should be connected to the neutral line. Some unit have a safety disconnect rocker switch located just outside of the electrical control box area. The switch disconnects the live line. Verify that it is working properly with a multimeter or test lamp. Always ensure the ERV is properly grounded before and after testing.



CAUTION

The ERV is designed to operate with ducting. When first starting the ERV, measure the amp draw to each motor at each speed to ensure it is operating at or below the max rating.

	Maximum AMP Rating		
	HIGH	MED.	LOW
1230ERV	9.4	6.0	4.5
730ERV	4.5	3.2	2.4
530ERV	3.2		2.4
330ERV	2.0	1.4	1.0

Optional Lifebreath Ventilation Control - Part #99-BC04

Key Features:

- 2 speed fan setting (LOW / HIGH)
- Standby setting (fan OFF)
- 20/40 mode
- Compatible with 99-DET02 Wireless Timers
- Slim-line design
- Connect to 3 wire 20 gauge low voltage wire

BC02 Operating Instructions:

Turning on the Control

Press and release the ON/OFF button . The light above will illuminate.

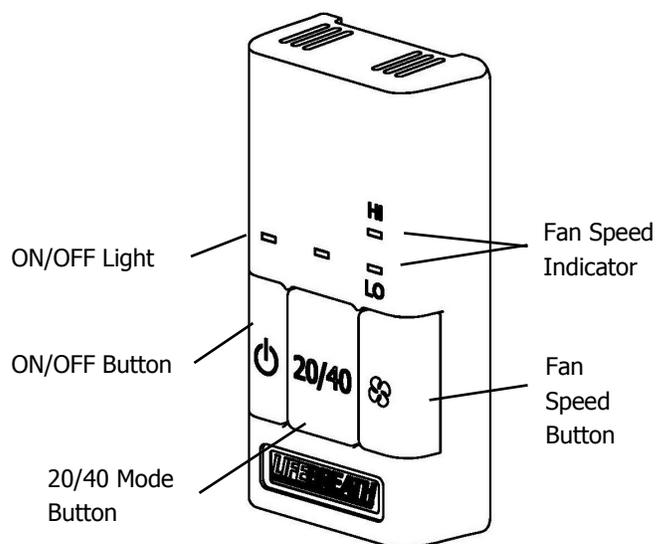
Setting the Ventilation Speed

Press and release the Fan button  to select LOW or HIGH fan speed. The corresponding "Indicator Light" will illuminate. If both LO and HI indicator lights are off, the fan is OFF but will turn ON if required by the Dehumidistat or remote Timer (if installed).

Setting 20/40

Mode After a fan speed has been selected, press and release the 20/40 button. The "Indicator Light" will turn ON and the control will be in 20/40 mode.

20/40 mode is a repeating cycle. The fan will run at the set speed, LO or HI, for 20 minutes then turn OFF for 40 minutes.



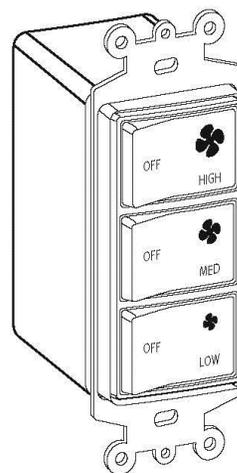
Optional Lifebreath 3 Speed Control - Part #99-500

Key Features:

- 3 Speed Fan setting (LOW / MEDIUM / HIGH)
- 4 wire; 20 gauge wire (minimum)
- Connect to Red, White, Yellow, Green.

ATTENTION

When used in conjunction with the 99-BC02, the BC02 control must be ON for the 99-500 control to operate. The 99-BC02 will override the 99-500 control when the Dehumidistat is operating or the control is set to HIGH speed.



Optional Lifebreath Wireless Timer - Part #99-DET02

The Timers may be installed onto a flush mounted electrical switch box or it may be surface mounted onto a wall. Multiple Timers may be installed in a ventilation system. To increase the range of a wireless Timer, a RX02 Repeater should be used.

Pairing:

1. Turn on the main wall control by pressing the ON/OFF button  and remove the battery from Timer.
2. Press the left and right buttons simultaneously on the main wall control ( and ). The bottom row of 3 LED's will begin flashing. This indicates that the main control is now in pairing mode. (Figure E)
3. Keep the Timer within 16" of the main wall control when pairing.
4. Install the battery in the DET02 Timer. All four lights on the Timer will immediately flash 5 times, then only the red battery light will remain on for approximately 12 seconds after which the "40" light flashes the rev code. 20, 40, 60 lights will flash until paired or will stop if not paired within 12 seconds. If pairing was not successful you now must return to step 1 to restart the pairing process.
5. Press the  button on the main wall control to exit.

To pair additional DET02 Timers with the same wall control, or if pairing was not successful, repeat steps 1-6.

When paired, the DET02 Timers can be moved and installed elsewhere. Estimated range of the Timer is 40' with no obstructions. A RX02 Repeater may be installed to increase the range of the Timers.

Test if pairing was successful by pressing the Select Button and listen for the HRV / ERV to initiate HIGH fan speed Ventilation.

Un-pairing:

1. Remove the battery from the back of the DET02 Timer.
2. Press and hold the Select Button on the front of the Timer.
3. While holding the Select Button, reinsert the battery in the Timer. Continue holding the select button until the LED under "40" begins flashing. The DET02 Timer will now be unpaired with the main wall control.



Note

The wireless Timers and Repeaters must be matched to the main wall control of the HRV / ERV. This process is called "Pairing". Multiple Timers and Repeaters can be paired to a single wall control.

Figure A

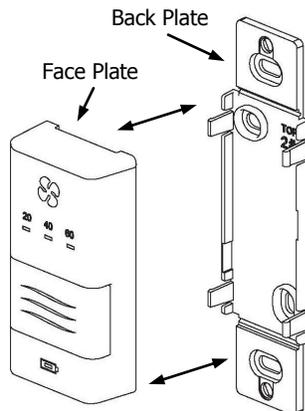


Figure B

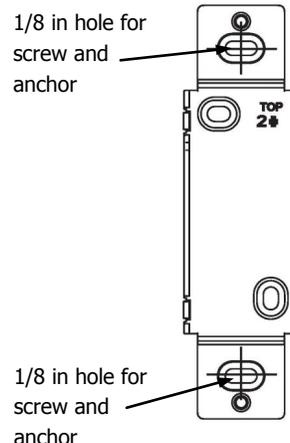


Figure C

Alternate Wall Mount

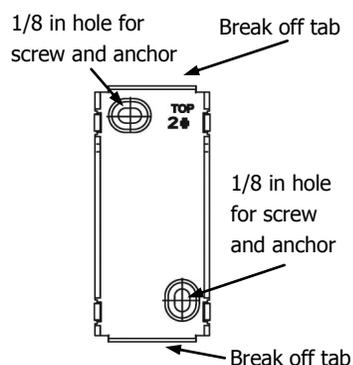


Figure D

BC02 Control

NOTE: Your control may look different than the one shown.

Press simultaneously to initiate pairing mode

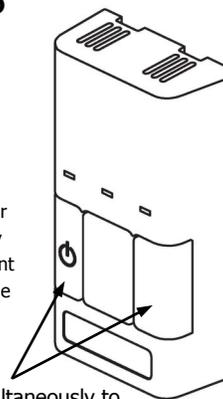
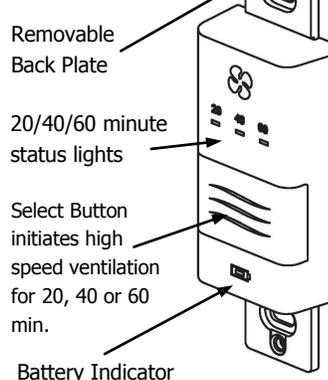


Figure E

DET02 Timer



Optional Lifebreath Wireless Timer - Part #99-DET02

Installation of Wireless Timer

1. Separate the Face Plate from the Back Plate by firmly pulling apart (Figure A).
2. For mounting the control without a Decora plate, break off top and bottom tabs and refer to Figure C for mounting.
3. Place the Back Plate of the control in the desired location on the wall and pencil mark the top and bottom screw holes (Figure B or C). Drill two 1/8" holes.
4. Attach the Back Plate to the wall using the 2 supplied screws and anchors.
5. Attach the Face Plate to the Back Plate (Figure A).

Overview of Lifebreath Wireless 20/40/60 Minute Timer

Initiates HIGH speed Ventilation for 20, 40 or 60 minutes. The 20/40/60 minute Status Lights indicate HIGH speed operation.

Wireless Timers have an estimated range of 40' with no obstructions. To increase the range of a Wireless Timer a 99-RX02 Repeater may be used.

Using the Wireless Timer

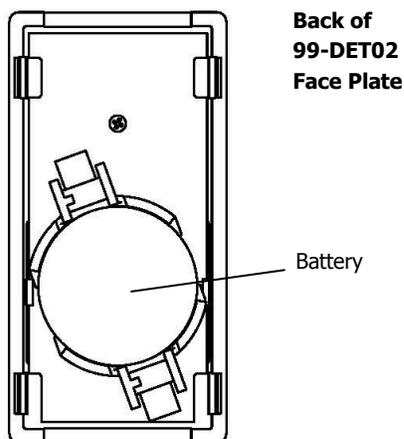
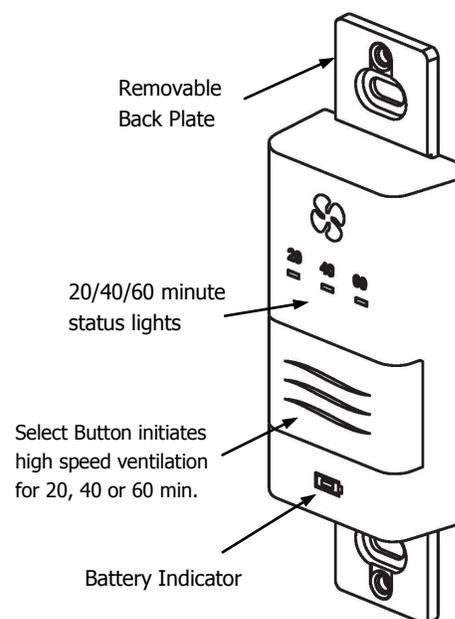
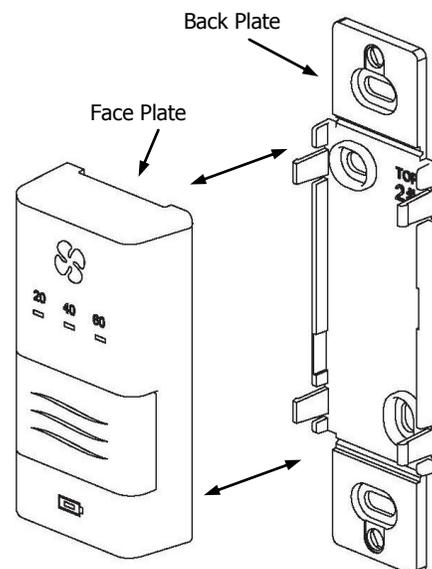
When paired to the main wall control, the Wireless Timer may be moved to a remote location in the home such as a bathroom.

Pressing the Select Button on the Timer will initiate HIGH speed fan operation. The corresponding Status Light will illuminate under the number on the Timer to indicate either 20, 40 or 60 minutes of HIGH speed fan operation. To cancel the call for HIGH speed fan operation, press the Select Button until the Status Lights are no longer illuminated.

Replacing the Battery

When the battery needs to be replaced in the Wireless Timer, the red LED Battery Indicator will illuminate.

To replace the battery, first remove the Face Plate by pulling it off the wall. On the back of the Timer Face Plate the battery will be exposed. Replace the battery and re-attach the Face Plate to the Back Plate. Be careful not to damage the tabs on the Back Plate when re-attaching the Face Plate.



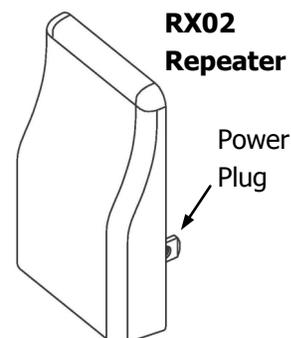
Optional Lifebreath Wireless Repeater - Part #99-RX02

The RX02 Repeaters are to be plugged directly into a 120V power outlet

1. Turn on the main wall control by pressing the ON/OFF button .
2. Press the left and right buttons simultaneously on the main wall control ( and ). The bottom row of 3 LED's will begin flashing. This indicates that the main control is now in pairing mode.
3. The RX02 Repeater must be powered within 16" of the main wall control for pairing. If an outlet is not available an extension cord should be used to power the repeater initially for pairing.
4. Plug the RX02 Repeater into the power outlet. The green light will flash after approximately 12 seconds indicating that the repeater is paired with the main wall control.
5. Press the ON/OFF button on the main wall control to exit pairing mode and the Repeater may now be unplugged and moved to its permanent location.

To pair additional RX02 Repeaters with the same wall control, repeat steps 1-5 until all Repeaters have been paired.

When installed in its permanent location, the green LED will remain solid to indicate the best location and the Repeater can be moved farther if required. The green LED will flash to indicate it is in a good location. A red light indicates the Repeater is out of range and needs to be moved closer to the main wall control.



Optional Lifebreath 20/40/60 Minute Timer - Part #99-DET01

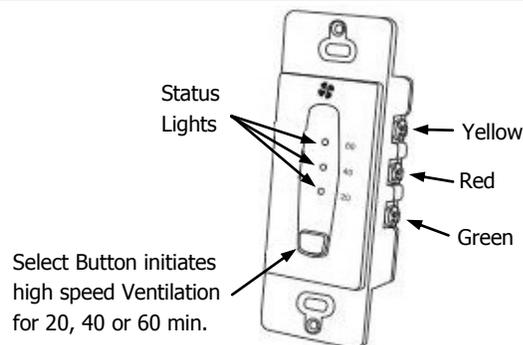
Operating the Timer

Press and release the Select Button to activate a 20, 40 or 60 minute HIGH speed override cycle. The Light will illuminate and the unit will run on HIGH speed Ventilation for the selected time. The Light will dim after 10 sec. for run time. The Light will flash during the last 5 min. of the cycle. The Timer connected to the unit will illuminate for the duration of the override when the Select Button is pressed.

Lockout Mode

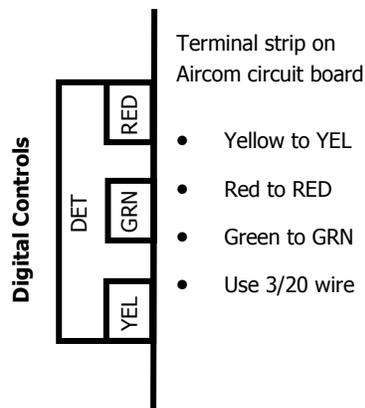
Lockout Mode is useful if you wish to disable the Timers. The Timer can be set to lockout mode by pressing and holding the Select Button for five seconds. After 5 sec., the Light will flash; release the Select Button. The Timer is now in lockout mode. If the Select Button is pressed during lockout mode the Light will momentarily illuminate but no override will be initiated.

If lockout mode is initiated when the Timer is activated, the Timer will continue its timed sequence but will not allow any further overrides to be initiated. Lockout mode can be unlocked by pressing and holding the Select Button for 5 sec. After 5 sec. the Light will stop flashing. Release the Select Button and the Timer will now operate normally.



NOTE

- Timers mount in standard 2" x 4" electrical boxes.
- Wire multiple timers individually back to the unit.
- Use 3/20 low voltage wire



Function and Controls

Basic Functions

Speed control is obtained by powering 24V to one of the designated speed taps.

Example:

A jumper between the **R** terminal and the **G** terminal will result in low speed operation.

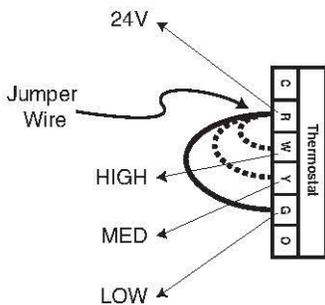
Setup

Select appropriate operational speed by installing the jumper wire between one of the designated speed taps. (A jumper wire is factory installed in the low speed position.)

Note:

It is recommended to use the optional speed control Part # 99-500 in order to obtain 3 speed fan control.

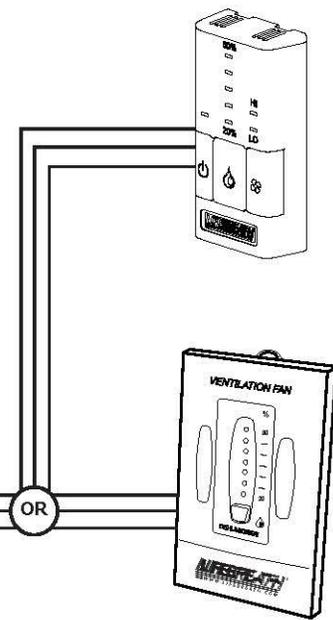
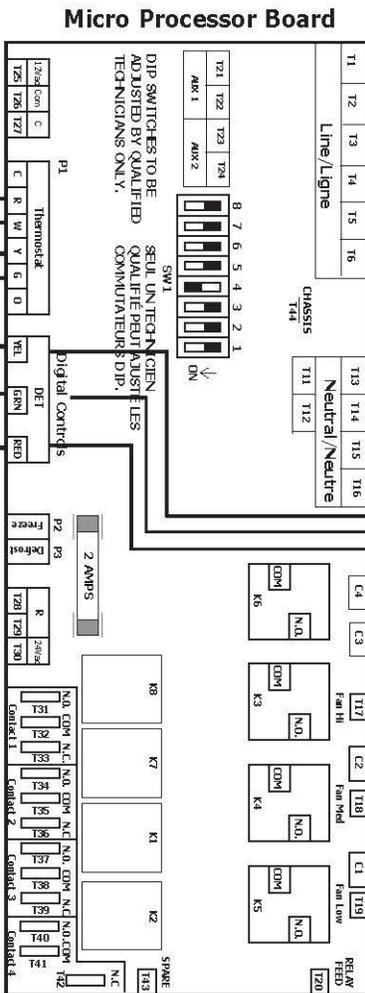
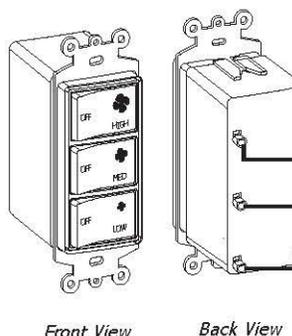
Jumper wire placement on microprocessor board



SPEED	JUMPER	
High	R	W
Medium	R	Y
Low	R	G

Optional 3 Speed Control (Part #99-500)

Connect to R, W, Y and G on Thermostat



Optional 20/40/60 Minute Timer Part# 99-DET01

- Boost unit to Ventilation Mode for 20, 40, 60 minutes (no speed change).
- Connect up to 4 maximum
- Connect to Yellow, Red & Green

Refer to "Connecting Optional Control" in this manual for instructions on connecting the optional Life-breath Ventilation Control (Part# 99-BC02) and optional Life-breath Dehumidistat (Part# 99-DH-01) Connect to Yellow, Red & Green

Connecting Optional Control - Part #99-BC04

The control is to be surface mounted onto a wall.

Only 1 master control should be installed to a ventilation system (the Face Plate on this illustration may not be exactly the same as yours).

1. Separate the Face Plate from the Back Plate by firmly pulling apart (Figure A). Be careful not to damage Face Plate Contact Pins.
2. For mounting the control without a Decora plate, break off top and bottom tabs and refer to Figure C for mounting.
3. Place the Back Plate of the control in the desired location on the wall and pencil mark the top and bottom screw holes (Figure B or C).
4. Remove the Back Plate and mark the center hole for the wires in the middle of the screw holes. Refer to Figure B or C for placement.
5. Cut in a 3/4 in by 1 in oval hole in the wall to allow for the wire opening and drill (two) 1/8 in holes for the screws and wall anchors (Figure B or C).
6. Pull 3 wire 20 gauge (min.) 100 ft length (max.), through the opening in the wall.
7. Connect red, green, and yellow to the Wiring Terminals located on the Back Plate (Figure B or C).
8. Attach the Back Plate to the wall using the 2 supplied screws and anchors.
9. Attach the Face Plate to the Back Plate (Figure A). Note: Be careful to correctly align the Face Plate to avoid damaging the Face Plate Contact Pins.
10. Connect the 3 wire 20 gauge (min.) 100 ft length (max.) to the digital controls terminal strip located on the Aircom circuit board (Figure D).

! ATTENTION

Pay special attention not to damage the Contact Pins when attaching and detaching the Face Plate. (Figure B)

Figure A

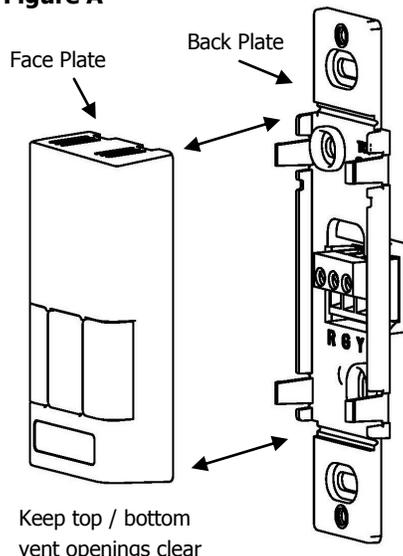


Figure B

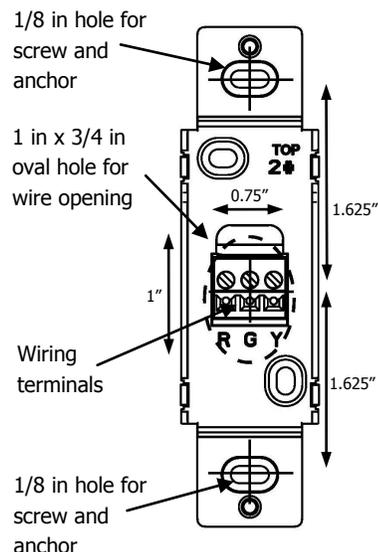


Figure C

Alternate Wall Mount

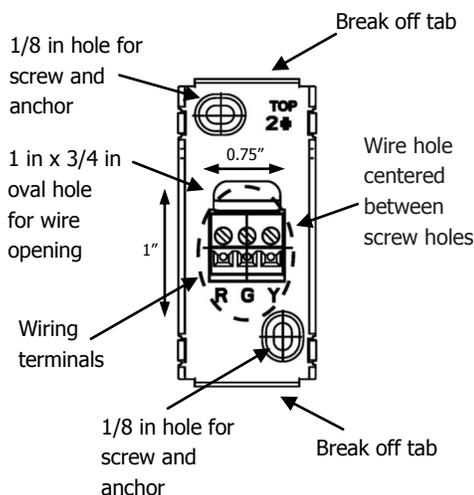
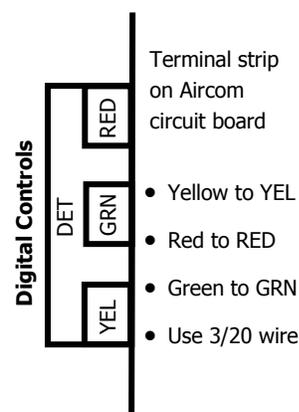


Figure D



Pitot Tube Air Flow Balancing - Commercial

It is necessary to have balanced air flows in an ERV. The volume of air brought in from the outside must equal the volume of air exhausted by the unit. If the air flows are not properly balanced, then;

- The ERV may not operate at its maximum efficiency
- A negative or positive air pressure may occur in the building
- The unit may not defrost properly
- Failure to balance ERV properly may void warranty

Excessive positive pressure may drive moist indoor air into the external walls of the building where it may condense (in cold weather) and degrade structural components. May also cause key holes to freeze up.

Excessive negative pressure may have several undesirable effects. In some geographic locations, soil gases such as methane and radon gas may be drawn into the home through basement/ground contact areas. Excessive negative pressure may also cause the back-drafting of vented combustion equipment.

Read the Application Warning on the front of this manual!

Prior to balancing, ensure that:

1. All sealing of the ductwork system has been completed.
2. All of the ERV's components are in place and functioning properly.
3. Balancing dampers are fully open.
4. Unit is on HIGH speed.
5. Air flows in branch lines to specific areas of the house should be adjusted first prior to balancing the unit. A smoke pencil used at the grilles is a good indicator of each branch line's relative air flow.
6. After taking readings of both the stale air to the ERV duct and fresh air to the house duct, the duct with the lower CFM ([L/s] velocity) reading should be left alone, while the duct with the higher reading should be adjusted back to match the lower reading. See **Adjusting the Airflow**.
7. Return unit to appropriate fan speed for normal operation

BALANCING PROCEDURE

The following is a method of field balancing an ERV using a Pitot tube, advantageous in situations when flow stations are not installed in the ductwork. Procedure should be performed with the ERV on high speed.

The first step is to operate **all** mechanical systems on **high speed**, which have an influence on the ventilation system, i.e. the ERV itself and the forced air furnace or air handler if applicable. This will provide the maximum pressure that the ERV will need to overcome, and allow for a more accurate balance of the unit.

Drill a small hole in the duct (about 3/16"), three feet downstream of any elbows or bends, and one foot upstream of any elbows or bends. These are recommended distances but the actual installation may limit the amount of straight duct.

The Pitot tube should be connected to a manometer capable of reading 3 digits of resolution. The tube coming out of the top of the pitot is connected to the high pressure side of the gauge. The tube coming out of the side of the pitot is connected to the low pressure or reference side of the gauge.

Insert the Pitot tube into the duct; pointing the tip into the airflow.

For general balancing it is sufficient to move the pitot tube around in the duct and take an average or typical reading. Repeat this procedure in the other (supply or return) duct. Determine which duct has the highest airflow (highest reading on the manometer). Adjust the higher airflow by reducing the fan speed (see "Adjusting the Airflow"). The flows should now be balanced. Actual airflow can be determined from the gauge reading. The value read on the gauge is called the velocity pressure. The Pitot tube comes with a chart that will give the air flow velocity based on the velocity pressure indicated by the gauge. This velocity will be in either feet per minute or meters per second. To determine the actual airflow, the velocity is multiplied by the cross sectional area of the duct being measured.

This is an example for determining the airflow in a 6" duct. The Pitot tube reading was 0.025 inches of water.

From the chart, this is 640 feet per minute.

The 6" duct has a cross sectional area of

$$= [3.14 \times (6" \div 12) \div 2]^2 \div 4 \\ = 0.2 \text{ square feet}$$

The airflow is then:

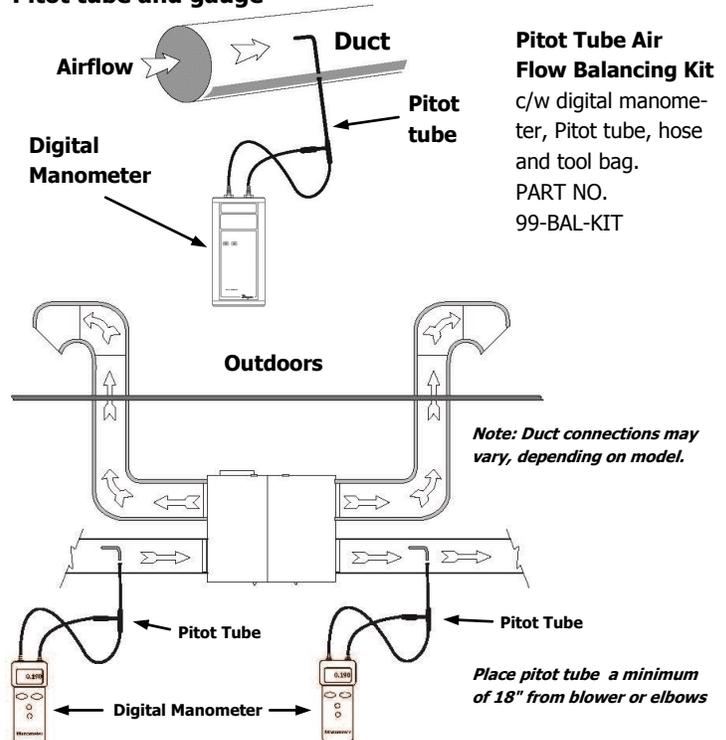
$$640 \text{ ft./min.} \times 0.2 \text{ square feet} = 128 \text{ cfm}$$

For your convenience, the cross sectional area of some common round duct is listed below:

DUCT DIAM. (inches)	CROSS SECTION AREA (sq. ft.)
5 (127 mm)	0.14
6 (152 mm)	0.20
7 (178 mm)	0.27

The accuracy of the air flow reading will be affected by how close to any elbows or bends the readings are taken. Accuracy can be increased by taking an average of multiple readings as outlined in the literature supplied with the Pitot tube.

Pitot tube and gauge



Service and Maintenance

Servicing your ERV on a regular schedule will result in optimum operating efficiencies and prolonged life of the equipment.

Due to numerous applications in which this equipment can be installed, it is difficult to predict servicing intervals. In certain situations where there is heavy smoke, servicing the equipment every one - two months may be needed; whereas ventilating a meeting room for carbon dioxide may only need service every six months to a year.

Motor

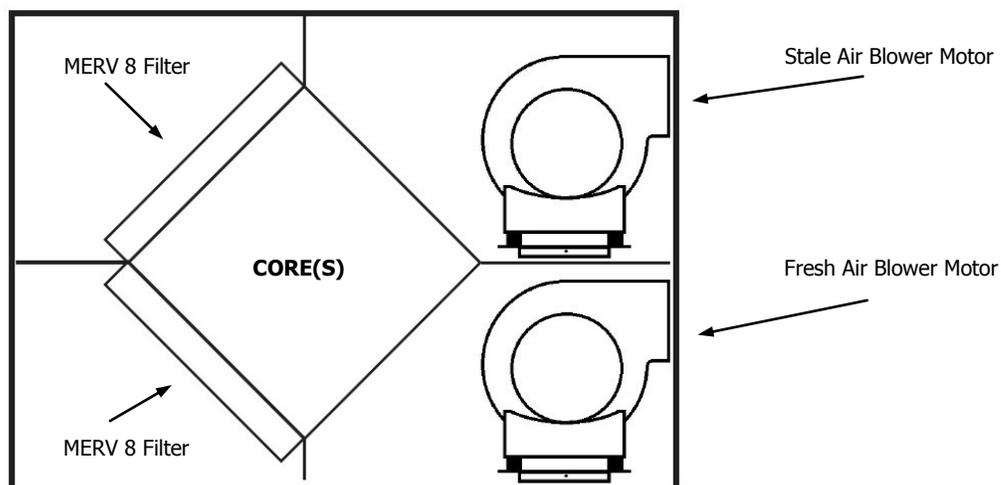
Access to the motor is through the front service doors. Note heat exchanger core can be removed to provide more room. See **ERV Core** in this section.

The motor is a permanent split capacitor type (PSC) which uses a sleeve mechanism to steady the shaft.

ERV Core

Remove core(s) and vacuum or use low pressurized air to clean core(s). Do not wash or submerge in water. With the core(s) in its proper position, place the bottom corner into its guide rail support, then place the left side, the right side and finally the top corner into place in the same fashion. Once the core(s) is in place, push the core evenly into the cabinet until it reaches the back.

Note the core(s) will protrude slightly out from the front of the cabinet, this is so the access doors, when closed, ensures a tight fit.



When removing cores and filters note their location and arrangement.

Service and Maintenance

Filters

Open front service door to access the filters located in both supply and exhaust air streams. Note to remove and install filters, it may be easier to first remove the core(s). Refer to **ERV Core**.

The filters are designed to stop large particles from entering in the core. The filters are fastened in place by a metal spring rod. To remove filters from core(s) simply pull the rod from one end, outward until free from core lip, and remove.

Only use warm water with a mild detergent to wash the filters. Do not use harsh chemicals.

The time between filter service will depend on the application the ERV has been installed in. It can be as often as one - two months or at the very least, cleaned every six months.

Duct Work

It is a good idea to inspect ducting, outside weather hoods (wall caps), and grilles for blockage and dirt buildup, at least every six months.

Outside weatherhoods should be protected by a bird screen which can plug up with debris. Also, it is a good idea to visually confirm that the fresh air supply is free from any sources of contamination, such as other vented combustion equipment added after the fact.

General Maintenance

As a final step in a routine maintenance schedule, it is a good idea to confirm operation of the system, checking speed control functions and remote control operation, if applicable.

Wipe the inside of the cabinet to remove dust and cob webs as needed.

It is a good idea to keep a service/maintenance log of the unit.

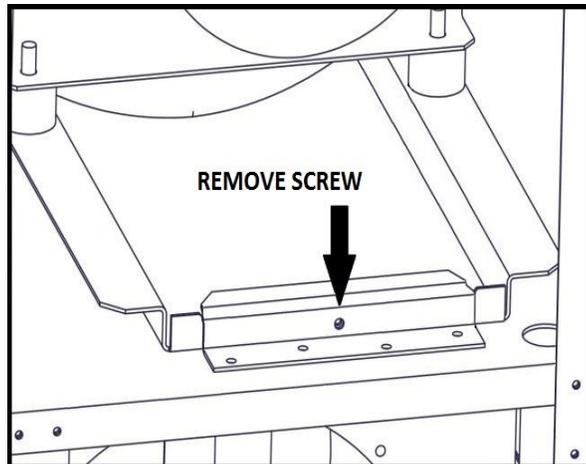
Reverse Installation of the ERV

Electrical Box Removal:

1. Remove the door panels from the ERV by loosening the screws located on the face of the doors.
2. Remove the electrical box cover by removing the 4 screws fastening the cover in place.
3. Disconnect the motor wires coming through the bottom of the electrical box from the circuit board, capacitors and relays, and remove from the electrical box.
4. Pull motor wires for lower blower through hole in blower divider panel.
5. Disconnect thermistor from circuit board and remove from electrical box.
6. Remove the 4 screws securing the electrical box to the cabinet of the ERV.

! ATTENTION

7. Remove the ground continuity screw from both the upper and lower blower pans securing them to the pan stops.



8. Remove the plastic snap bushing from the hole in the top core support panel where the damper wires were removed from, and install a snap plug to seal the hole, found in the manual bag.
9. Remove the snap plug from the hole in the top core support panel, and install a plastic snap bushing in hole.
10. Remove the two snap plugs from the opposite side of the cabinet for electrical and control wires.

Reinstalling the Electrical Box:

11. Install the two snap plugs in the cabinet holes on the side of the ERV which electrical box was originally removed from.
12. Route wires for both blower motors to opposite side of ERV cabinet where electrical box is to be installed.
13. Install the grounding continuity screw in both the upper and lower blower assemblies on the opposite side of the ERV where electrical box is now installed.
14. Fasten the electrical box to the cabinet of the ERV using the 4 screws that were previously removed.
15. Remove the snap plug from the blower divider panel and install plastic snap bushing provided in manual bag.
16. Install snap plug in hole in blower divider panel where lower blower motor wires were originally removed from.
17. Route the lower blower motor wires through the hole in the divider panel into the electrical box.
18. Route upper motor wires into the electrical box.
19. Connect the motor wires to the circuit board, relays and capacitors using wiring diagram found in manual for reverse installations.
20. Route thermistor wire from electrical box, through hole in the top core support panel, and secure the blue end to the thermistor bracket in front of the damper motor using a plastic cable tie.
21. Connect the thermistor to the circuit board in the electrical box.
22. Putty holes closed in blower divider panel and top core support panel with wires protruding through.
23. Install the large single door panel on the now back of the cabinet where electrical box was removed from and fasten using the eight machine screws.
24. Reversing of the ERV is now complete. Continue with the installation of the ERV.

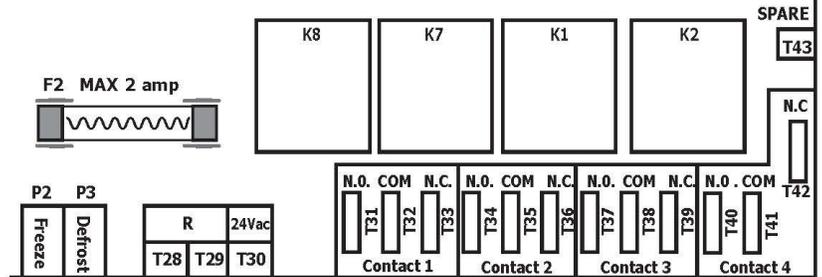
Aircom Relays

The Aircom circuit board has three available "dry contact" relays. Contact 3 is not available.

Maximum 115V 10 amp resistive load.

Contact 2 and 4

These relays initiate whenever the ERV fans are operating.



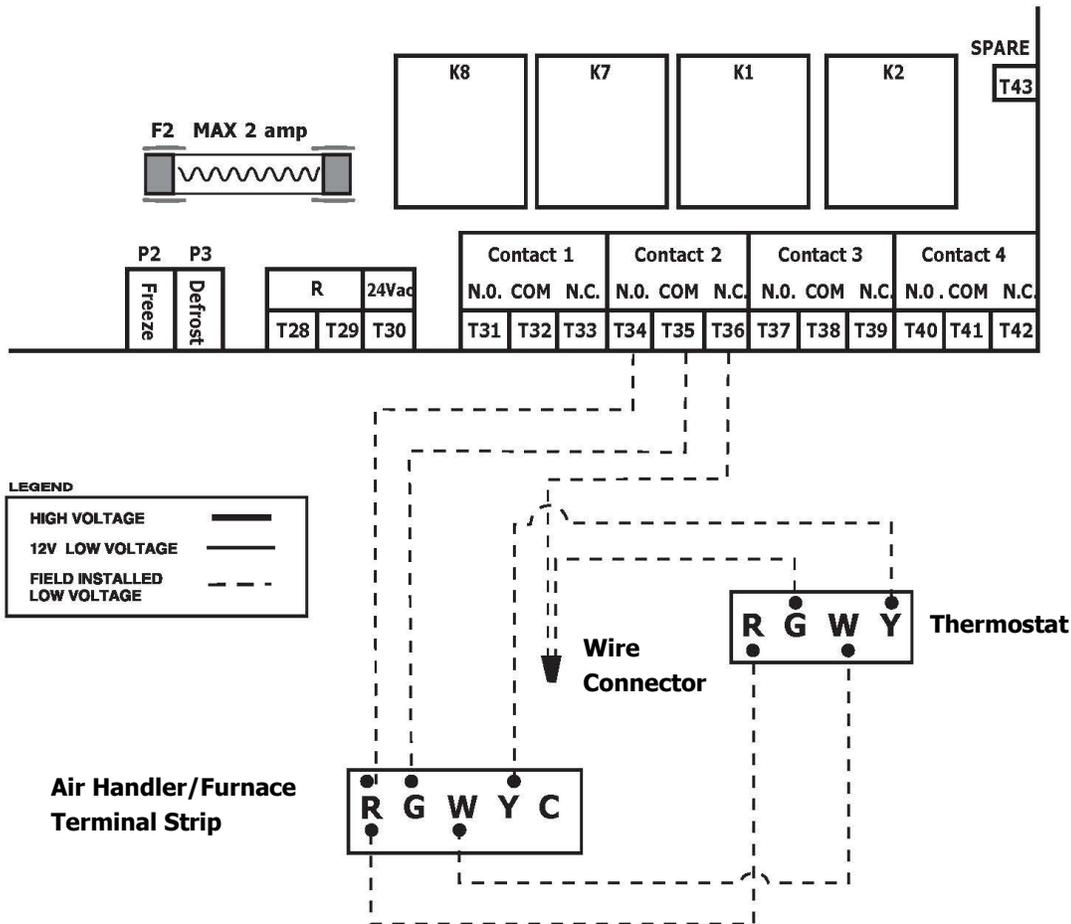
Aircom Relays

Use contact 2 or 4 to interlock the ERV to an Air Handler or Furnace.

Connecting the ERV as illustrated will ensure the Air Handler Blower Motor is operating whenever the ERV is ventilating.

⚠ CAUTION

Consideration must be given to competing air-flows when connecting the ERV in conjunction with an Air Handler/Furnace Blower system.



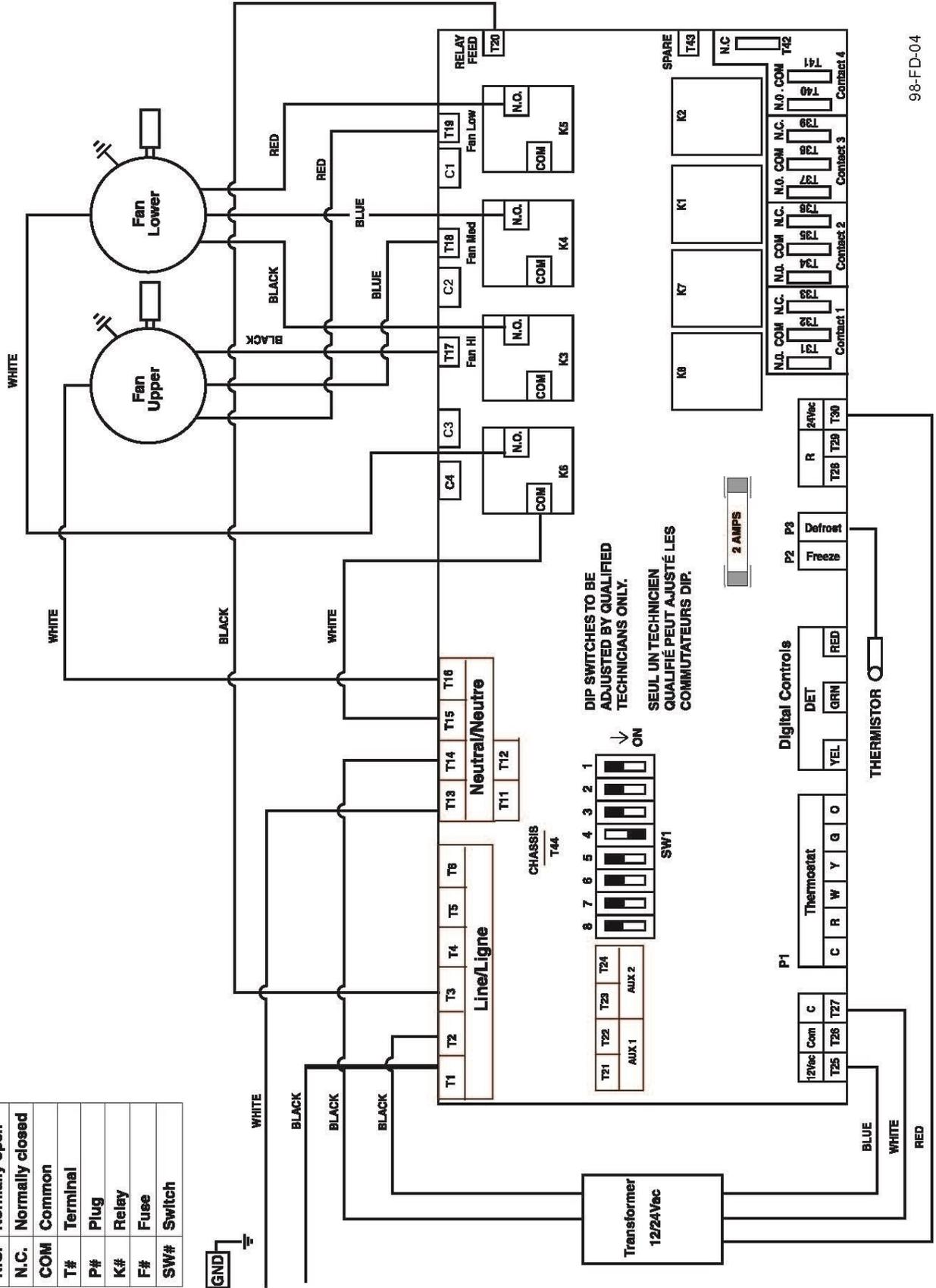
Troubleshooting Your ERV System

Symptom	Cause	Solution
Poor airflows	<ul style="list-style-type: none"> • 1/4 in (6 mm) mesh on outside hood is plugged • Filters plugged • Core obstructed • House grilles closed or blocked • Dampers are closed if installed • Poor power supply at site • Ductwork is restricting ERV • Improper speed control setting • ERV airflow improperly balanced 	<ul style="list-style-type: none"> • Clean exterior hoods or vents • Remove and clean filter • Remove and clean core • Check and open grilles • Open and adjust dampers • Have electrician check supply voltage • Check duct installation • Increase the speed of the ERV • Have contractor balance ERV
Supply air feels cold	<ul style="list-style-type: none"> • Poor location of supply grilles, the airflow may irritate the occupant • Outdoor temperature extremely cold 	<ul style="list-style-type: none"> • Locate the grilles high on the walls or under the baseboards, install ceiling mounted diffuse or grilles so as not to directly spill the supply air on the occupant (i.e. over a sofa) • Turn down the ERV supply speed. A small duct heater (1 kW) could be used to temper the supply air. • Placement of furniture or closed doors is restricting the movement of air in the home • If supply air is ducted into furnace return, the furnace fan may need to run continuously to distribute ventilation air comfortably
Humidity levels are too high condensation is appearing on the windows	<ul style="list-style-type: none"> • Lifestyle of the occupants • Moisture coming into the home from an unvented or unheated crawl space • Moisture is remaining in the wash room and kitchen areas • Condensation seems to form in the spring and fall • ERV is set at too low a speed 	<ul style="list-style-type: none"> • Avoid hanging clothes to dry, storing wood and venting clothes dryer inside. Firewood may have to be moved outside • Vent crawl space and place a vapor barrier on the floor of the crawl space • Ducts from the washroom should be sized to remove moist air as effectively as possible, use of a bathroom fan for short periods will remove additional moisture • On humid days, as the seasons change, some condensation may appear but the homes air quality will remain high with some ERV use • Increase speed of the ERV
Humidity levels are too low	<ul style="list-style-type: none"> • Blower speed of ERV is too high • Lifestyle of occupants • ERV airflows may be improperly balanced 	<ul style="list-style-type: none"> • Decrease ERV blower speed • Humidity may have to be added through the use of humidifiers • Have contractor balance ERV airflows
ERV and/or ducts frosting up	<ul style="list-style-type: none"> • ERV airflows are improperly balanced • Malfunction of the ERV defrost system 	<ul style="list-style-type: none"> • Note: minimal frost build-up is expected on cores before unit initiates defrost cycle functions • Have HVAC contractor balance the ERV • Ensure damper defrost is operating during self-test
Condensation or ice build up in insulated duct to the outside	<ul style="list-style-type: none"> • Incomplete vapor barrier around insulated duct • A hole or tear in outer duct covering 	<ul style="list-style-type: none"> • Tape and seal all joints • Tape any holes or tears made in the outer duct covering, ensure that the vapor barrier is completely sealed
Excessive vibration	<ul style="list-style-type: none"> • Dirt on fan wheels 	<ul style="list-style-type: none"> • Have contractor service ERV

CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY

Commercial Wiring Diagram for Fan Defrost

N.O.	Normally open
N.C.	Normally closed
COM	Common
T#	Terminal
P#	Plug
K#	Relay
F#	Fuse
SW#	Switch



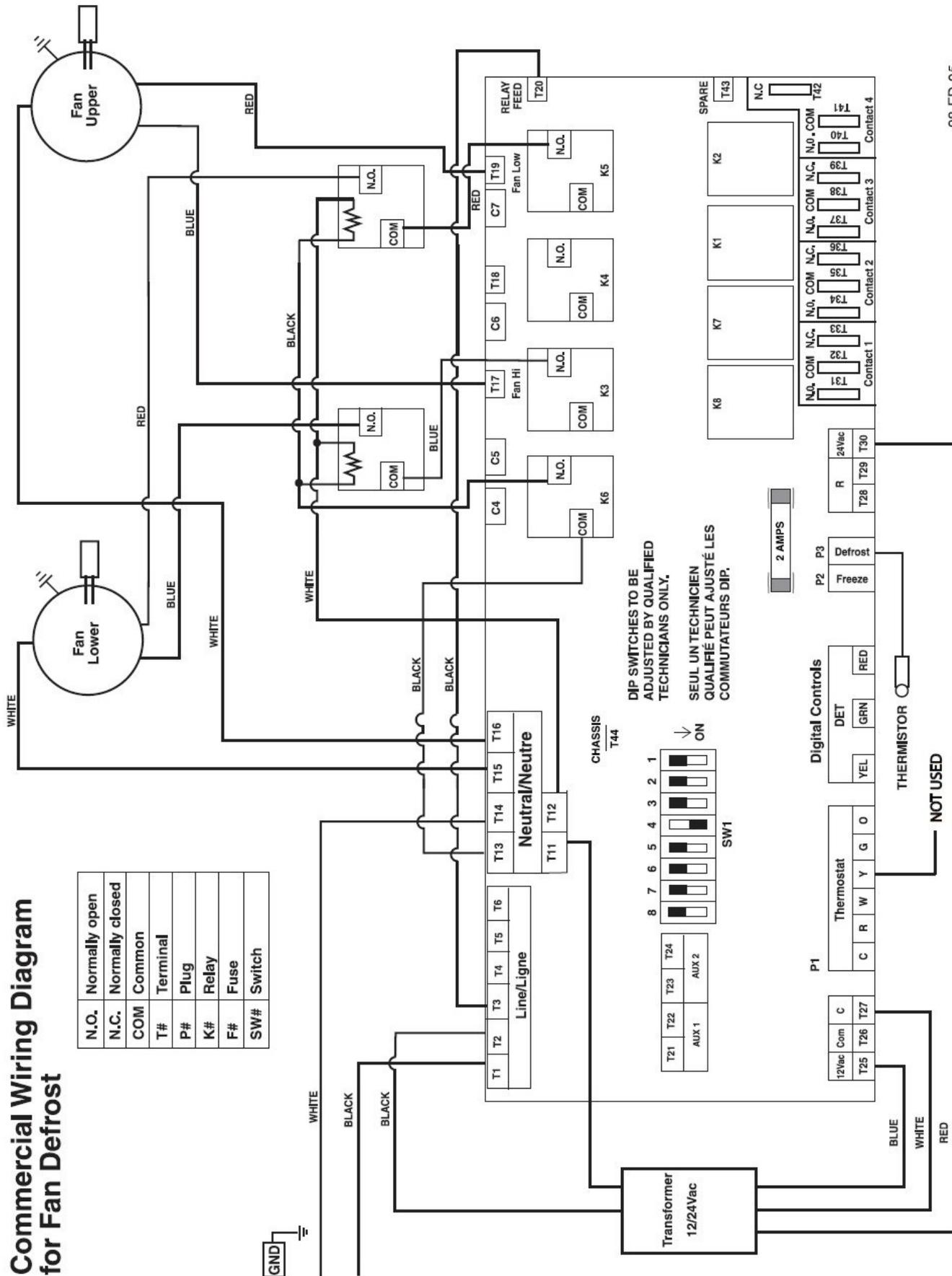
DIP SWITCHES TO BE ADJUSTED BY QUALIFIED TECHNICIANS ONLY.
SEUL UN TECHNICIEN QUALIFIE PEUT AJUSTE LES COMMUTATEURS DIP.

2 AMPS

CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY

Commercial Wiring Diagram for Fan Defrost

N.O.	Normally open
N.C.	Normally closed
COM	Common
T#	Terminal
P#	Plug
K#	Relay
F#	Fuse
SW#	Switch



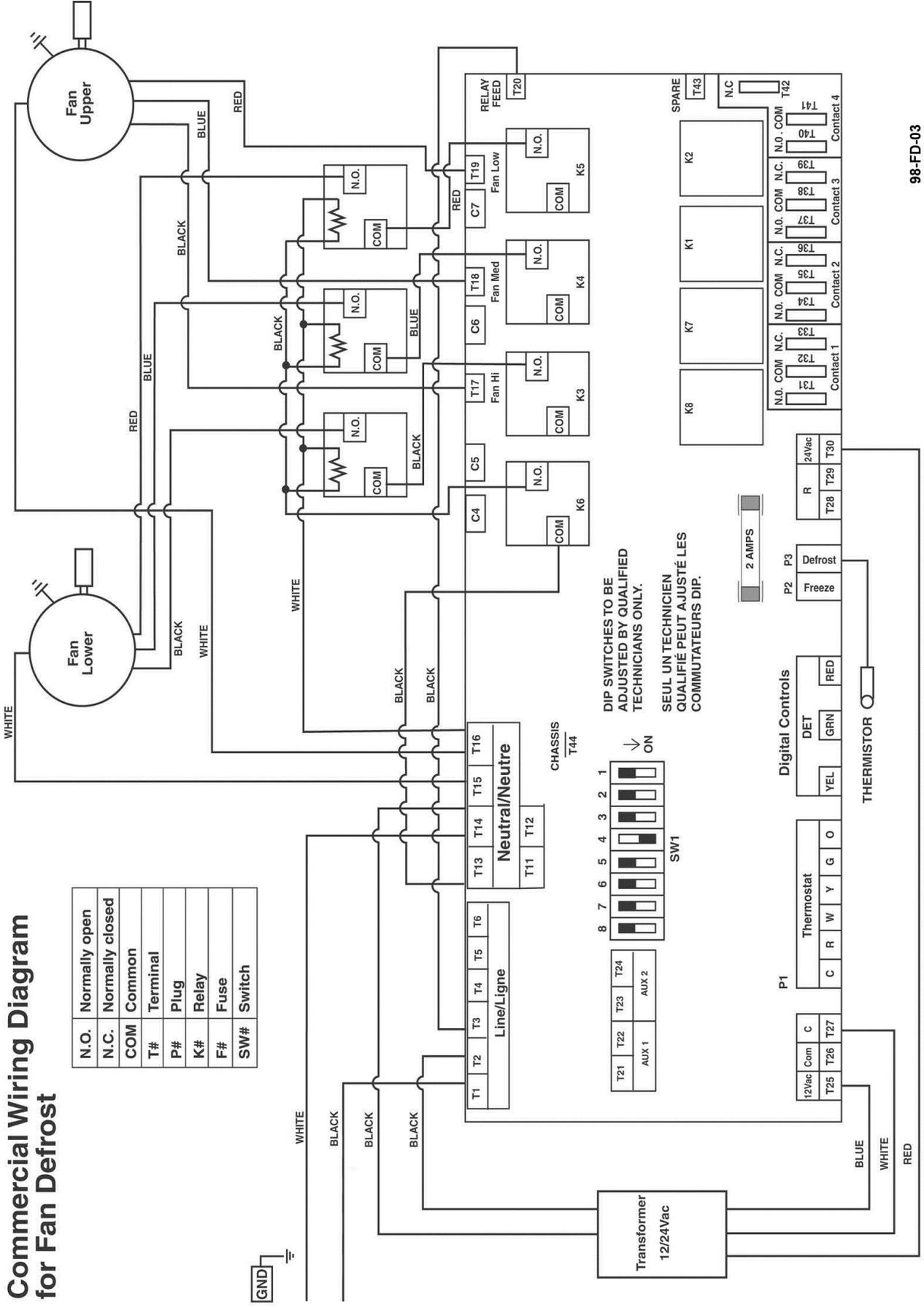
DIP SWITCHES TO BE ADJUSTED BY QUALIFIED TECHNICIANS ONLY.
SEUL UN TECHNICIEN QUALIFIÉ PEUT AJUSTÉ LES COMMUTATEURS DIP.

2 AMPS

CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY

Commercial Wiring Diagram for Fan Defrost

N.O.	Normally open
N.C.	Normally closed
COM	Common
T#	Terminal
P#	Plug
K#	Relay
F#	Fuse
SW#	Switch



DIP SWITCHES TO BE ADJUSTED BY QUALIFIED TECHNICIANS ONLY.
 SEUL UN TECHNICIEN QUALIFIÉ PEUT AJUSTÉ LES COMMUTATEURS DIP.



98-FD-03

COMMERCIAL LIFEBREATH® ENERGY RECOVERY VENTILATORS

2 Year Limited Warranty • 10 Year ERV Core Warranty

AIRIA BRANDS INC.® (AIRIA) warrants to the original purchaser of the Commercial LIFEBREATH® model and accessories referred to below, to be free from manufacturing defects.

This Warranty is personal to AIRIA® and is in effect from the date of the original purchase for a period of two years, save and except that a 10 YEAR WARRANTY is given to the LIFEBREATH® ERV core should it develop a condensation leak or become damaged during normal use.

Damage resulting from all other causes, including but not limited to: lightning, hurricane, tornado, earthquake or any other acts of God; improper installation, modification, alteration or misuse of the LIFEBREATH® or its operation in a manner contrary to the instructions accompanying the unit at the time of sale; accidental or intentional damage, neglect, improper care, or other failure by the owner to provide reasonable and necessary maintenance of the product; any attempt at repair by an unauthorized service representative or not in accordance with this warranty; or any other causes beyond the control of AIRIA®, are excluded from this warranty.

If you feel that the LIFEBREATH® you purchased is not free from manufacturing defects, please contact AIRIA BRANDS INC.®, 511 McCormick Blvd., London, Ontario N5W 4C8, 519-457-1904 or fax 519-457-1676 to find the name of your nearest dealer in order to repair the product. The labour required to install any replacement part(s) shall be dealt with at the option of the customer in either of the following ways:

- a) the customer may supply labour at their own expense: or
- b) if the product was purchased from a dealer, then the dealer may supply labour at cost to the customer.

AIRIA® reserves the right to replace the entire unit or to refund the original purchase price in lieu of repair.

AIRIA® MAKES NO EXPRESS WARRANTIES, EXCEPT FOR THOSE THAT ARE SET FORTH HEREIN AND SHALL NOT BE LIABLE FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES WITH RESPECT TO LIFEBREATH® COVERED BY THIS WARRANTY. AIRIA'S COMPLETE LIABILITY AND THE OWNER'S EXCLUSIVE REMEDY BEING LIMITED TO REPAIR OR REPLACEMENT ON THE TERMS STATED HEREIN. ANY IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY OF MERCHANTABILITY AND OF FITNESS FOR ANY PARTICULAR PURPOSE, ARE EXPRESSLY EXCLUDED.

NO PERSON IS AUTHORIZED TO CHANGE THE WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY UNLESS SUCH CHANGES ARE MADE IN WRITING AND SIGNED BY AN OFFICER OF AIR-IA®.

MODEL NO.: _____

UNIT SERIAL NO.: _____

INSTALLED BY: _____

DATE: _____



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London, Ontario N5W 4C8
T 1-855-247-4200
F 1-800-494-4185
Email: info@lifebreath.com

270 Regency Ridge, Suite 210
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