LIFEBREATH
Indoor Air Systems

INTERIOR MODEL
1500I-ECM

OUTDOOR MODEL
1500E-ECM (EXTERIOR ROOFTOP DESIGN)

INSTALLATION INSTRUCTION FOR HEAT RECOVERY VENTILATOR (HRV)

Caution

<u>Before</u> installation, careful consideration must be given to how this system will operate if connected to any other piece of mechanical equipment, i.e. a forced air furnace or air handler, operating at a higher static. <u>After</u> installation, the <u>compatibility</u> of the two pieces of equipment must be confirmed by measuring the airflows of the Heat Recovery Ventilator (HRV) by using the balancing procedure found in this manual.

It is always important to assess how the operation of any HRV may interact with vented combustion equipment (ie. Gas Furnaces, Oil Furnaces, Wood Stoves, etc.).

NEVER install a ventilator 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!

Application

Heat Recovery Ventilators (HRV) are designed to provide fresh air while exhausting an equal amount of stale air.

General

The HRV is equipped with an aluminum core. The device uses the stale air that is being exhausted to condition the fresh air as it is being brought in.

These instructions are intended as a general guide and do not supersede local codes in any way. Consult authorities who have jurisdiction before installation.

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! ATTENTION

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

* LEAVE WITH EQUIPMENT

NOTE: Due to ongoing research and product development, specifications, ratings and dimensions are subject to change without notice.

ISO 9001 REGISTERED

69-1500
0519

LIFEBREATH Indoor Air Systems

SPECIFICATIONS

AIRFLOW
1500 cfm (705 L/s) at 1.0"wg ESP.

PERFORMANCE
65% effective at 1500 cfm (705 L/s).

CORES
Six patented aluminum heat recovery cores arranged for efficient cross-flow ventilation.

MOTORS
Two single shaft ECM variable speed, 240V, 9.1 A, 1 ph, 1 hp. (18.2 a total) MCA: 22.8 MOP: 30

BLOWERS
Two direct drive centrifugal blowers, one per airstream.

FILTERS
Two - 20" x 16" x 2" (508 mm x 406 mm x 50 mm) pleated filters in each airstream. MERV 6 efficiency 60% @ 4.69 microns.

CONNECTION DUCT SIZES
Four 18" x 18" (457 mm x 457 mm)

CABINET
20 gauge powder coated steel 1" (25 mm) thick Elastomeric insulation.

DRAIN
Two powder coated galvanized steel drain pans with 1/2" (12 mm) O.D. drain connections.

MOUNTING
Unit to be set on support brackets hung by threaded rod type apparatus. Brackets and rod not included.

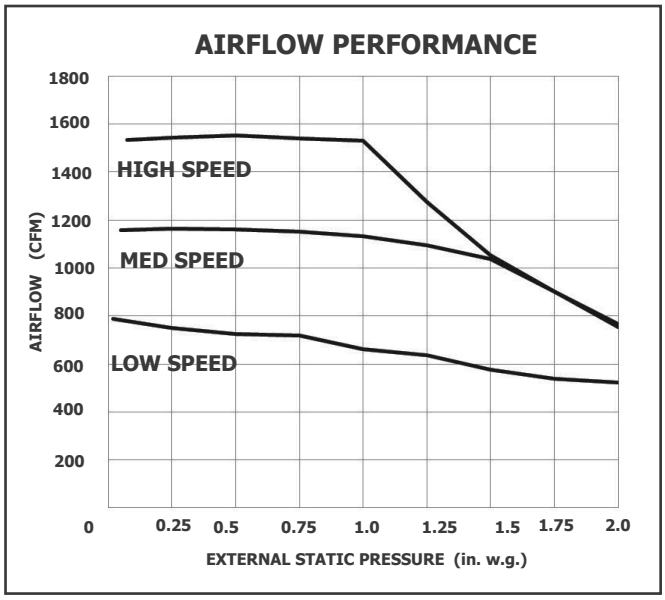
ELECTRONICS
Integrated microprocessor circuit board. Three (3) independently adjustable motor speeds.

CONTROL OPTIONS

99-BC02 Lifebreath Ventilation Control
- 2 speed fan setting (Low/High)
- Humidity control through adjustable Dehumidistat
- Compatible with 99-DET02 Wireless Timers
- 3 wire connection; 20 gauge wire (minimum)

99-500 3 Speed Control
- 3 Speed Fan setting (Low/Medium/High)
- 4 wire connection; 20 gauge wire (minimum)

99-DH01 Lifebreath Dehumidistat
- Humidity control through adjustable Dehumidistat
- 3 wire connection; 20 gauge wire (minimum)



DEFROST
Factory set defrost time. Supply motor is shut off while exhaust air defrosts core.

WEIGHT 460 lbs (210 kg) **SHIPPING WEIGHT** 580 lbs (260 kg)

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

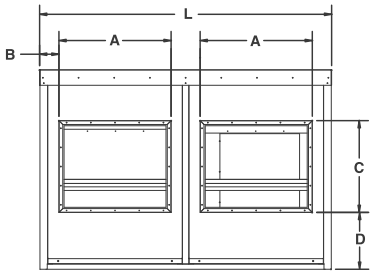
99-RX02 Lifebreath WIRELESS Repeater
- Used to extend range of 99-DET02 Wireless Timers when Timers are out of range
- Plugs into 120V power outlet and wirelessly connects to main control and 99-DET02

WARRANTY

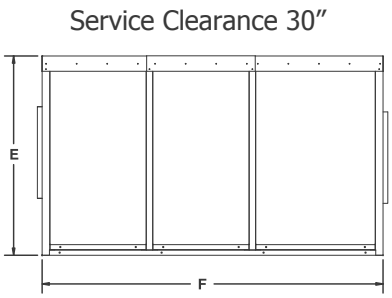
Units carry a 15 year warranty on the HRV core and a 2 year replacement parts warranty.

DIMENSIONS 1500I-ECM (in inches)

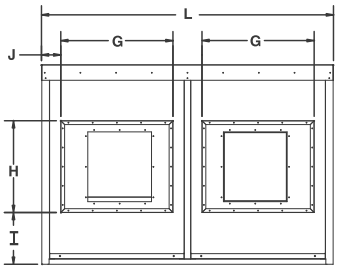
	A	B	C	D	E	F	G	H	I	J	L
ECM inches	18	2.5	18	12	37	66.75	18	18	10.25	2.5	44
ECM mm	457	64	457	305	940	1695	457	457	260	64	1118



INLET END VIEW



SIDE VIEW



OUTLET END VIEW

NOTE: All specifications are subject to change without notice.

All units conform to CSA and UL standards.

Date: _____ Contractor: _____

Tag: _____ Qty: _____ Supplier: _____

Project: _____ Quote#: _____

Engineer: _____ Submitted by: _____

LIFEBREATH Indoor Air Systems

SPECIFICATIONS

AIRFLOW
1500 cfm (705 L/s) at 1.0"wg ESP.

PERFORMANCE
65% effective at 1500 cfm (705 L/s).

CORES
Six patented aluminum heat recovery cores arranged for efficient cross-flow ventilation.

MOTORS
Two single shaft ECM variable speed, 240V, 9.1 A, 1 ph, 1 hp. (18.2 a total) MCA: 22.8 MOP: 30

BLOWERS
Two direct drive centrifugal blowers, one per airstream.

FILTERS
Two - 20" x 16" x 2" (508 mm x 406 mm x 50 mm) pleated filters in each airstream. MERV 6 efficiency 60% @ 4.69 microns.

CONNECTION DUCT SIZES
Two 19" x 16" (482 mm x 406 mm) to and from building under cabinet. Two 18" x 17" (457 mm x 431 mm) hoods included on side of cabinet with washable screens.

CABINET
20 gauge powder coated steel 1" (25 mm) thick Elastomeric insulation.

DRAIN
Two powder coated galvanized steel drain pans with 1/2" (12 mm) O.D. drain connections.

MOUNTING
Unit to be set on support brackets hung by threaded rod type apparatus. Brackets and rod not included.

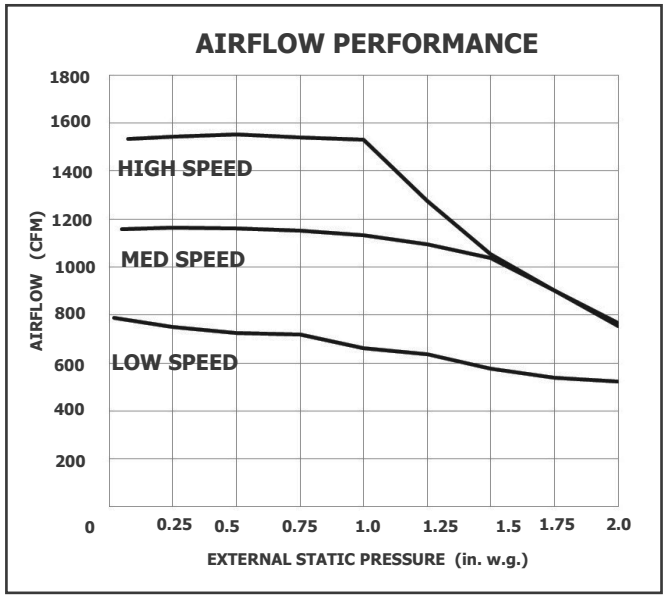
ELECTRONICS
Integrated microprocessor circuit board. Three (3) independently adjustable motor speeds.

CONTROL OPTIONS

99-BC02 Lifebreath Ventilation Control
- 2 speed fan setting (Low/High)
- Humidity control through adjustable Dehumidistat
- Compatible with 99-DET02 Wireless Timers
- 3 wire connection; 20 gauge wire (minimum)

99-500 3 Speed Control
- 3 Speed Fan setting (Low/Medium/High)
- 4 wire connection; 20 gauge wire (minimum)

99-DH01 Lifebreath Dehumidistat
- Humidity control through adjustable Dehumidistat
- 3 wire connection; 20 gauge wire (minimum)



DEFROST
Factory set defrost time. Supply motor is shut off while exhaust air defrosts core.

WEIGHT 530 lbs (240 kg) **SHIPPING WEIGHT** 650 lbs (290 kg)

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

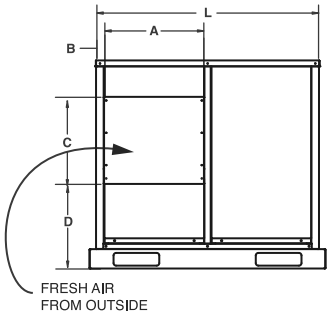
99-RX02 Lifebreath WIRELESS Repeater
- Used to extend range of 99-DET02 Wireless Timers when Timers are out of range
- Plugs into 120V power outlet and wirelessly connects to main control and 99-DET02

WARRANTY

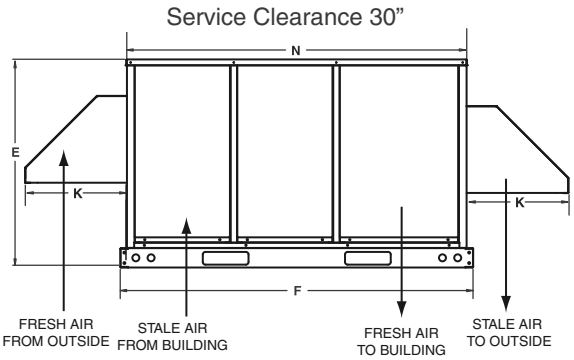
Units carry a 15 year warranty on the HRV core and a 2 year replacement parts warranty.

DIMENSIONS 1500E-ECM (in inches)

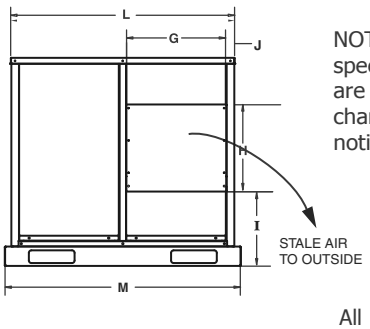
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
EFD inches	20	1.5	17	16.5	41	69.5	20	17	14.5	1.5	20	44	46.5	67
EFD mm	508	38	432	419	1041	1765	508	432	368	39	508	1118	1181	1702



INLET END VIEW



SIDE VIEW



OUTLET END VIEW

NOTE: All specifications are subject to change without notice.

All units conform to CSA and UL standards.

Date: _____ Contractor: _____

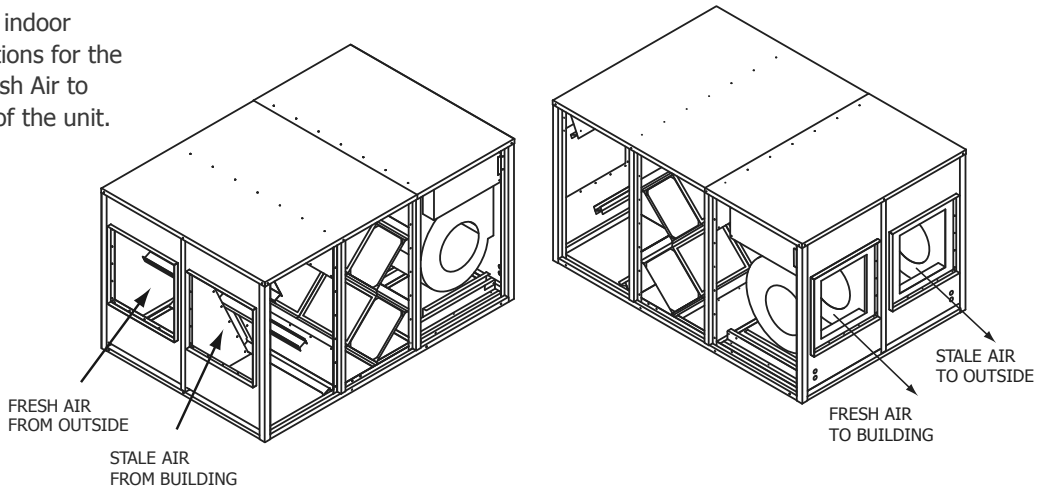
Tag: _____ Qty: _____ Supplier: _____

Project: _____ Quote#: _____

Engineer: _____ Submitted by: _____

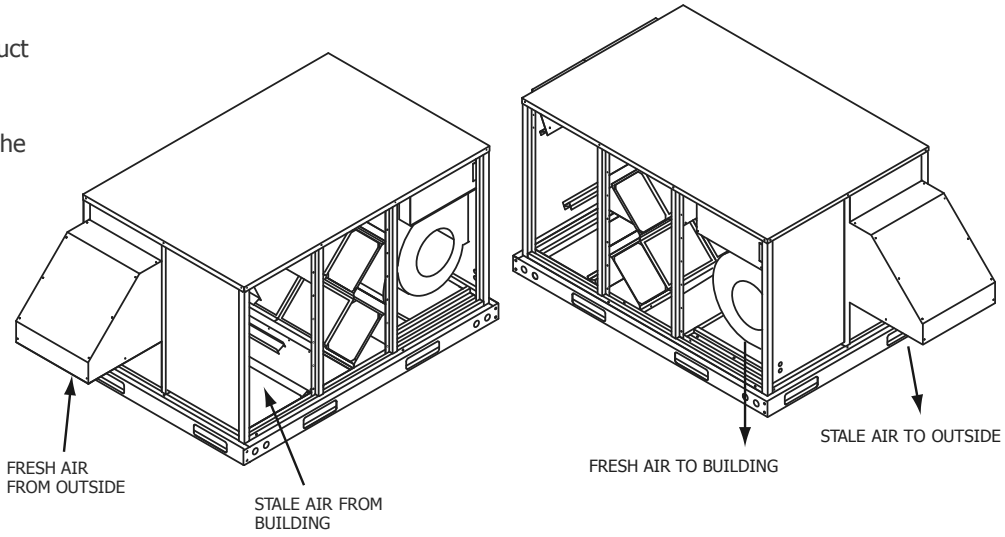
Duct Configuration — Model 1500I-ECM

The 1500I-ECM is designed for indoor installa-tions. The duct connections for the Stale Air From Building and Fresh Air to Building ducts are at the ends of the unit.



Duct Configuration — Model 1500E-ECM

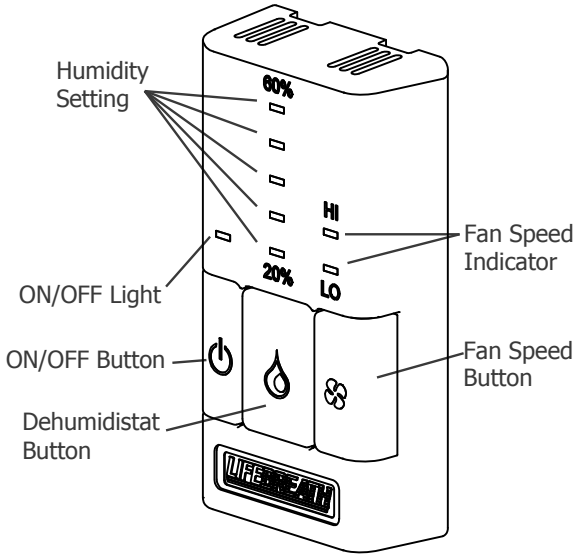
The 1500E-ECM is designed for outdoor rooftop installations. The duct connections for the Stale Air From Building and Fresh Air to Building ducts are located at the bottom of the unit. A roof curb is required for this installation.



Optional Lifebreath Ventilation Control - Part #99-BC02

Key Features:

- 2 speed fan setting (LOW / HIGH)
- Standby setting (fan OFF)
- Electronic Dehumidistat
- 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).

Humidity Control

Your unit will reduce indoor humidity when outdoor humidity levels are lower than indoor humidity levels. This feature is only effective when the outdoor temperature is below 59˚F (15˚C).

Setting the Dehumidistat

Press and release the Dehumidistat button until the Dehumidistat Light is at the desired setting. After a few seconds the Dehumidistat light will either flash or be on continuous.

A flashing light indicates the humidity level is higher than the setting and the unit is operating on high speed ventilation. A continuous light indicates the humidity level is lower than the setting. Refer to the unit's Home Owner's manual for instructions on how the Dehumidistat works.

The Dehumidistat will override the current speed setting to HIGH speed.

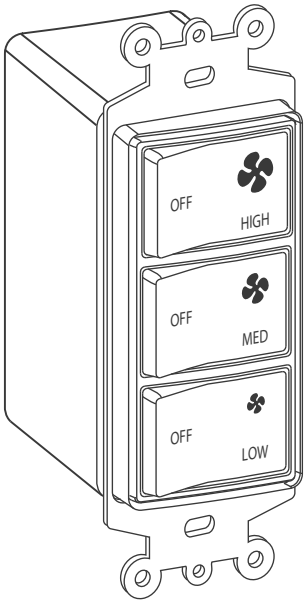
The Dehumidistat function can be turned OFF by pressing the button until no Dehumidistat light is on.

Note - Only 1 Dehumidistat should be installed in a system.

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.



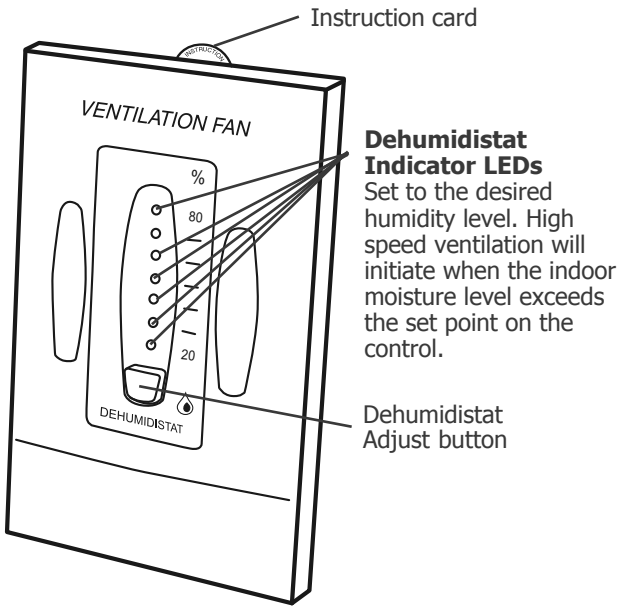
ATTENTION

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 Dehumidistat - Part #99-DH01

Key Features

- The Dehumidistat measures the indoor humidity level and will initiate high speed ventilation when the moisture level in the building exceeds the set point on the control.
- Once the humidity in the building is reduced, the HRV will revert back to its previous setting.
- The Dehumidistat should be set to OFF for all season except the heating season.
- Connect to 3 wire 20 gauge low voltage wire.



Humidity Control

Your HRV will produce a dehumidifying effect when outdoor humidity levels are lower than indoor humidity levels. Never use the Dehumidistat feature when outdoor temperatures are above 59 F (15 C).

Note: The indoor humidity level is measured at the control.

Setting the Dehumidistat

Press and release the Dehumidistat button until the Dehumidistat Light is at the desired setting. After 5 seconds the Dehumidistat light will either flash or be on continuous.

A flashing light indicates the humidity level is higher than the setting and the unit is operating on high speed ventilation. A continuous light indicates the humidity level is lower than the setting. Refer to the unit's Operation & Installation Manual for instructions on how the Dehumidistat works.

Note - Only 1 Dehumidistat should be active on a system.

Connecting Optional Control - Part #99-BC02

The control may be installed onto a flush mounted 2" x 4" electrical switch box or it may 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).

ATTENTION

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

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).

Figure A

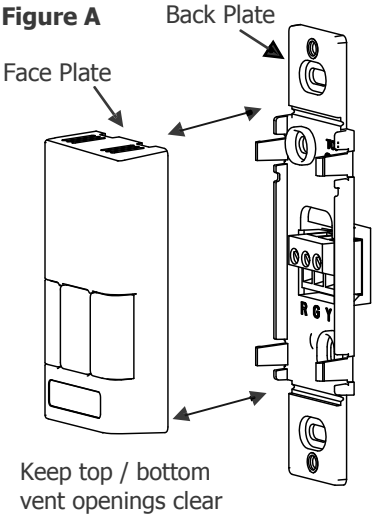


Figure B

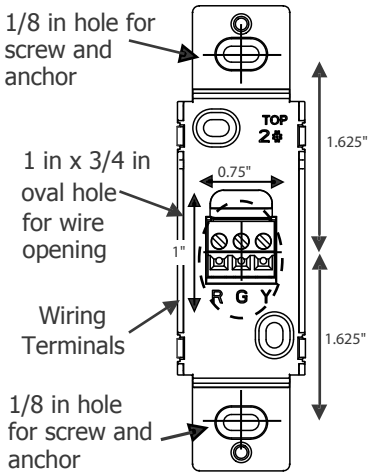


Figure C

Alternate Wall Mount

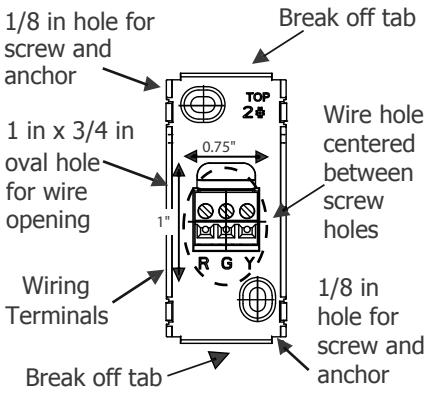


Figure D

Terminal strip on Aircom circuit board

- Yellow to YEL
- Red to RED
- Green to GRN
- Use 3/20 wire

Connecting Optional Control - Part #99-DH01

The **Lifebreath Dehumidistat** may be installed onto a flush mounted 2" x 4" electrical switch box or it may 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. Remove the Operating Instructions Card from the top of the Control (Figure A).
2. Separate the Face Plate from the Back Plate by firmly pulling apart (Figure B). Be careful not to damage Face Plate Contact Pins.
3. Place the Back Plate of the control in the desired location on the wall and pencil mark the wall in the center of the Wire Opening, Top Screw Hole and Bottom Screw Hole (Figure C).
4. Remove the Back Plate and drill a 3/8" opening in the wall to allow for the Wire Opening and a 1/8" hole for the Wall Anchors for the top and bottom screw holes (Figure D).
5. Pull 3/20 wire through the opening in the wall and the Wire Opening of the Back Plate (Figure C).
6. Connect Red, Green and Yellow to the Wiring Terminals located on the Back Plate (Figure C).
7. Secure a single wire to the Wire Retainer located on the Back Plate (Figure 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 B). Note: Be careful to correctly align the Face Plate to avoid damaging the Face Plate Contact Pins.
10. Insert the Operating Instructions Card into the control (Figure A).
11. Connect the 3 wire 20 gauge (min.) 100 ft length (max.) to the digital controls terminal strip located on the Aircom circuit board (Figure E).

ATTENTION

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

Figure A - Face Plate

Operating Instructions Card

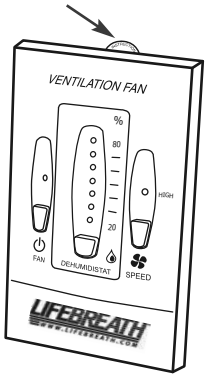


Figure B

Side View

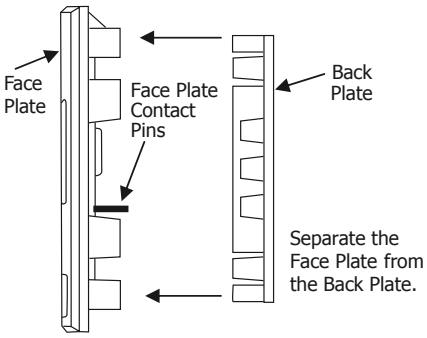


Figure C

Front View of Back Plate

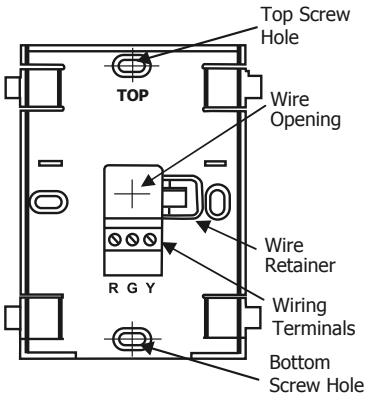


Figure D

Drill holes in wall

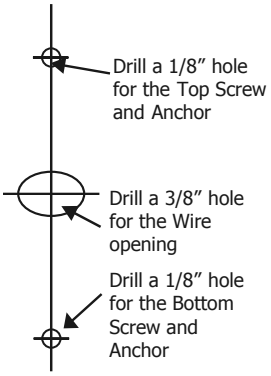


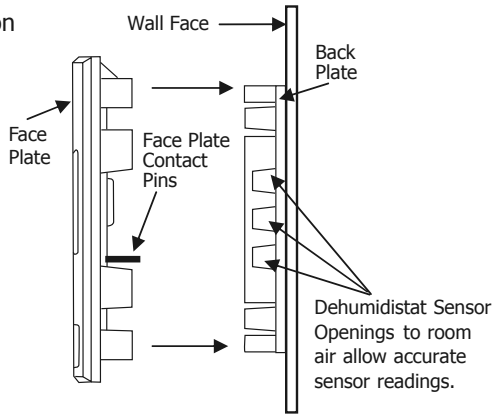
Figure E

Terminal strip on Aircom circuit board

- Yellow to YEL
- Red to RED
- Green to GRN
- Use 3/20 wire

Figure F

Correct Installation of Back Plate



Optional Lifebreath Wireless Timer - Part #99-DET02

The timer will override the operational mode (regardless of the settings) and initiate HIGH speed Ventilation. Upon completion of the timer cycle, the HRV will return to your selected operational mode and speed setting.

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

The Wireless Timers are to be surface mounted onto a wall. Multiple Wireless 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 D)
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 pairing mode when Timers have been successfully paired.

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 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.

ATTENTION

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

Figure A

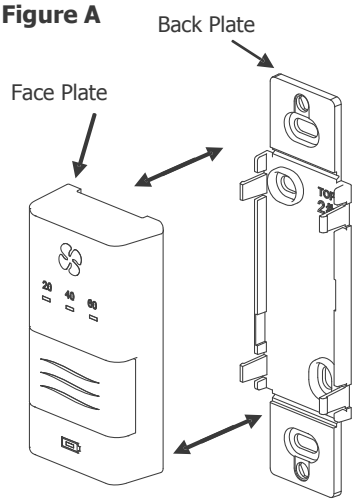
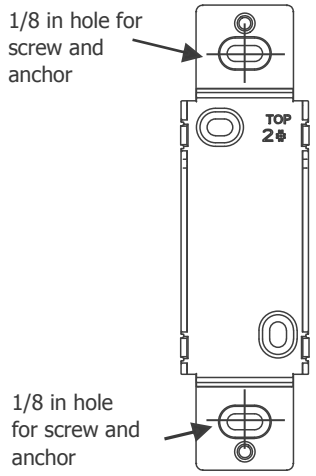


Figure B



Alternate Wall Mount **Figure C**

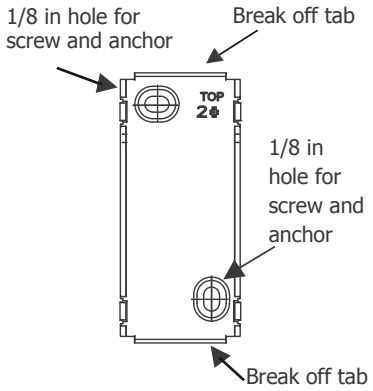


Figure D

BC02 Control

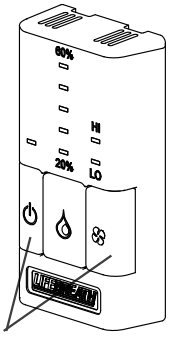
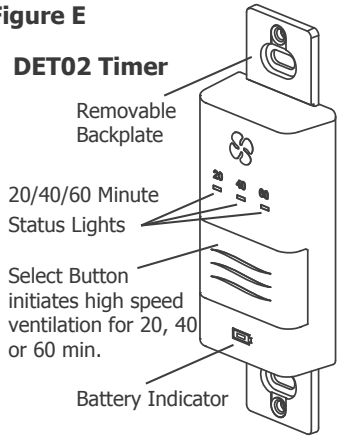


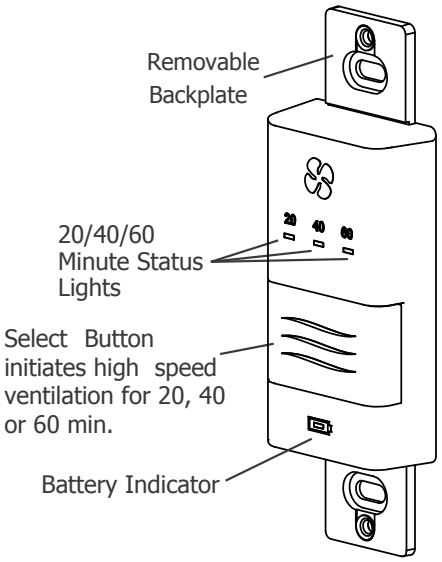
Figure E

DET02 Timer



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

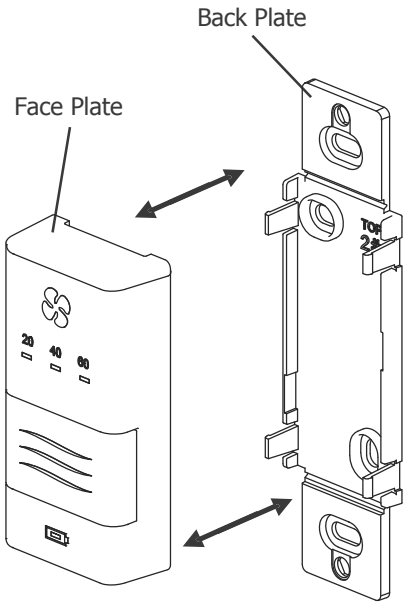
When paired to the main wall control, the Wireless Timer may be moved to a remote location in the home such as a bathroom.

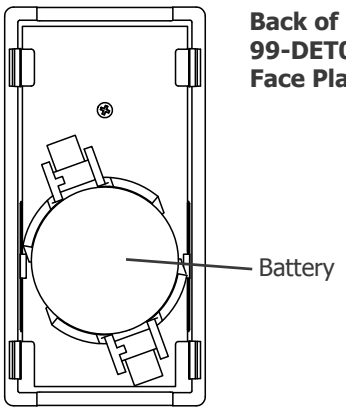
Pressing the Select Button on the Timer will initiate HIGH speed fan operation. The corresponding Status Light will illuminate under the number on the Timer to indicate either 20, 40 or 60 minutes of HIGH speed fan operation. To cancel the call for HIGH speed fan operation, press the Select Button until 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 Pate to the Back Plate. Be careful not to damage the tabs on the Back Plate when re-attaching the Face Plate.





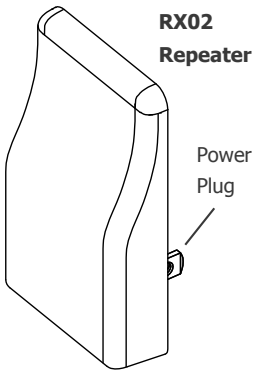
Back of 99-DET02 Face Plate

Optional Lifebreath Wireless Repeater - Part #99-RX02

Installation and Pairing of Wireless Repeaters: 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 ✿). main control). 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.

NOTE: Wireless Repeaters cannot be used in a network to extend the range of another Wireless Repeater.

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

Operating your Lifebreath 20/40/60 Minute Fan Timer

Press and release the Select Button to activate a 20, 40 or 60 minute high speed override cycle. The High Speed Status Light will illuminate and the unit will run on high speed ventilation for the selected time.

The High Speed Status Light will dim after 10 seconds of run time.

The High Speed Status Light will flash during the last 5 minutes of the cycle.

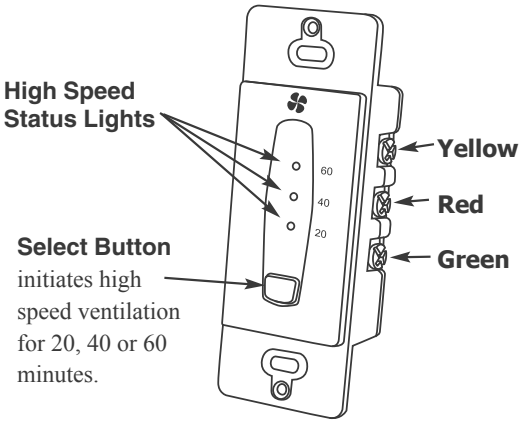
The timer connected to the unit will illuminate for the duration of the override when the Select Button is pressed.

Lockout Mode

Lockout Mode is useful if you wish to disable the timers.

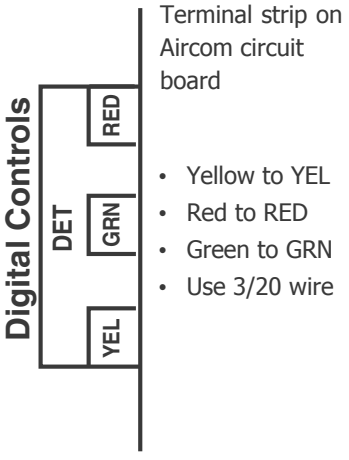
The timer can be set to lockout mode by pressing and holding the Select Button for five seconds. After five seconds, the High Speed Status Light will flash; release the Select Button. The timer is now in lockout mode. If the Select Button is pressed during lockout mode the High Speed Status Light will 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 five seconds. After five seconds the High Speed Status Light will stop flashing. Release the Select Button and the timer will now operate normally.



NOTE ABOUT TIMERS

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



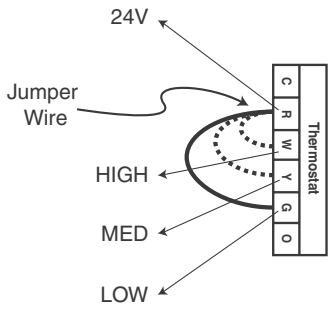
Basic Functions

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.

Jumper Wire Placement on Micro Processor Board



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.)

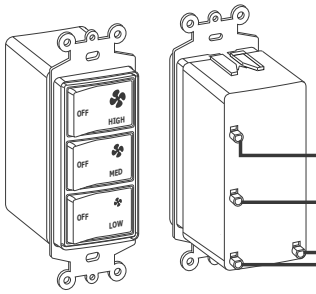
Note:

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

SPEED	JUMPER	
High	R	W
Medium	R	Y
Low	R	G

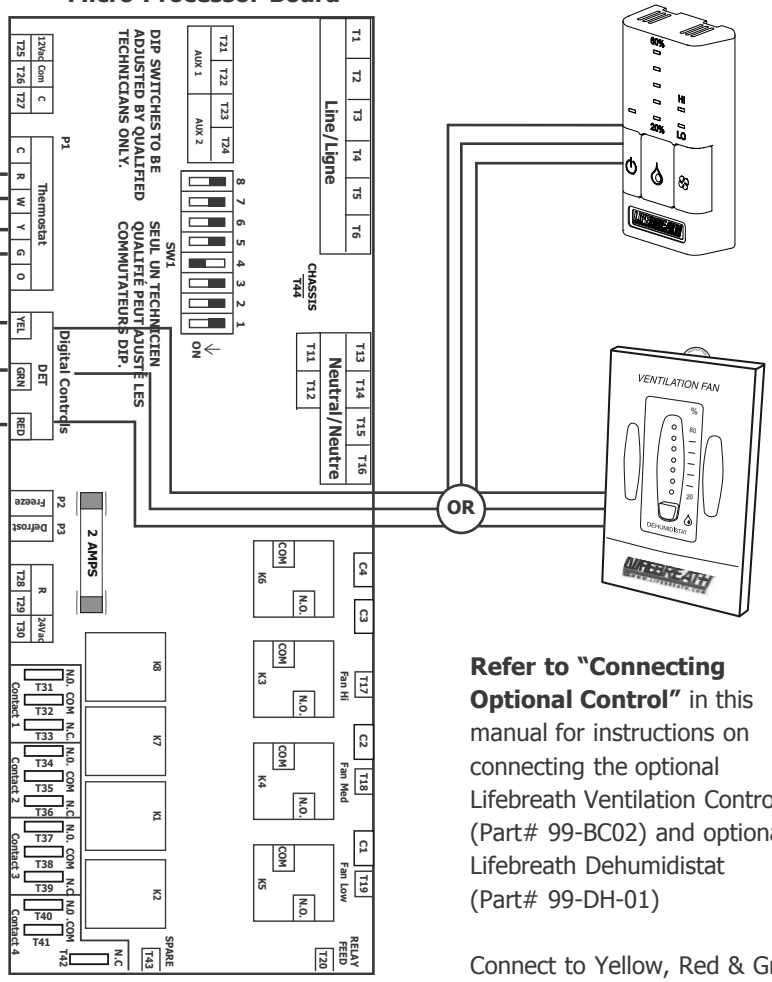
Optional 3 Speed Control (Part #99-500)

Connect to R, W, Y and G on Thermostat



Front View *Back View*

Micro Processor Board



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 Lifebreath Ventilation Control (Part# 99-BC02) and optional Lifebreath Dehumidistat (Part# 99-DH-01)

Connect to Yellow, Red & Green

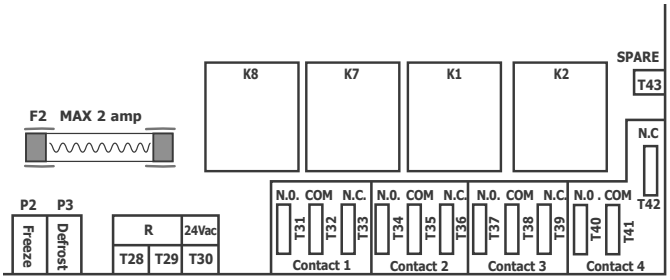
Aircom Relays

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 HRV fans are operating.



Servicing

The 1500I-ECM and 1500E-ECM are designed to be serviceable from either side. If access to the unit will only be available from one side, the unit must be set up accordingly. The unit is factory shipped to be serviced from the front. (Blowers on the right when facing the unit. If servicing is only accessible from the other side follow the procedure below.

1. The Ebox must be removed from the front brackets and mounted on the rear brackets provided on the other side of the unit
2. The filter divider panels must be removed and placed in the unit so they can be removed from the opposite side.
3. The lower blower divider panel must be removed and mounted in the unit from the other side.

Each panel on the unit can be removed by removing the two bolts on the bottom.

Servicing is easiest by removing the side panels on both sides to gain access to either side of the unit.

Servicing Filters

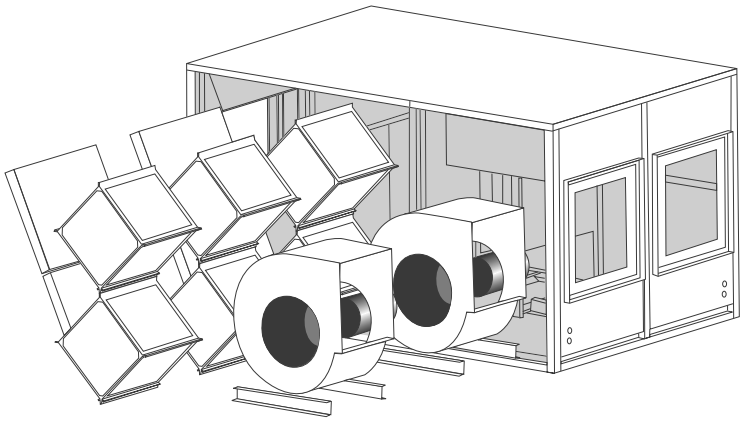
1. Remove filter service panel (one or both sides)
2. Remove first set of filters.
3. Remove filter divider panels (if only accessing from one side)
4. Remove filters from behind filter divider panel
5. Replace all filters. Ensure that filter divider panels are re-inserted into unit.

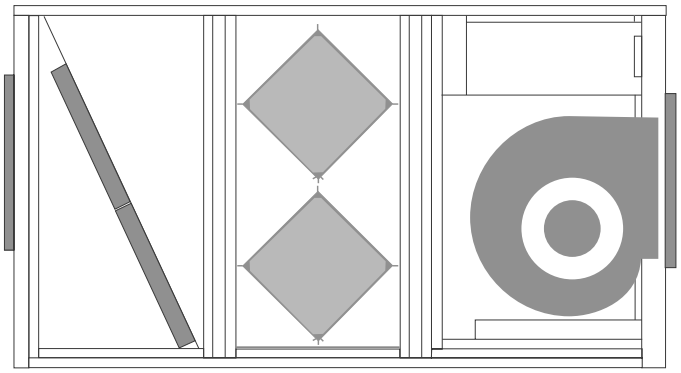
Servicing Cores

1. Remove core service panel (one or both sides)
2. Slide cores out (regular core maintenance).
3. When placing the cores back into the unit, ensure that there are no gaps between any of the cores. Ensure all H channels are flush with the ends of the cores before the core service panel is re-attached.

Servicing Blowers

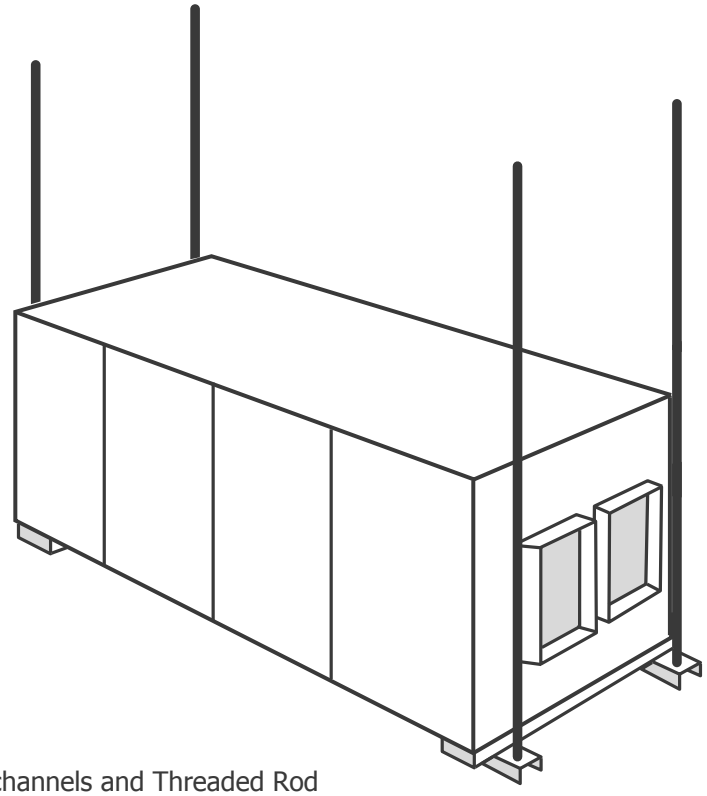
1. Remove blower service panel (one or both sides)
2. Unscrew the 2 bolts that connect the blower to the blower rails of the unit.
3. Remove all wiring to the motors.
4. Slide blower back and lift to remove blower assembly.
5. If access to the unit is not available from both sides, remove the blower divider panel by removing the 8 bolts holding this panel in place.
6. For EFD model, unscrew the 4 bolts that connect the downward facing blower to the blower rails. Lift out blower assembly. (End panel can be removed to facilitate blower removal).
7. Repeat steps 2-4 with the other blower.





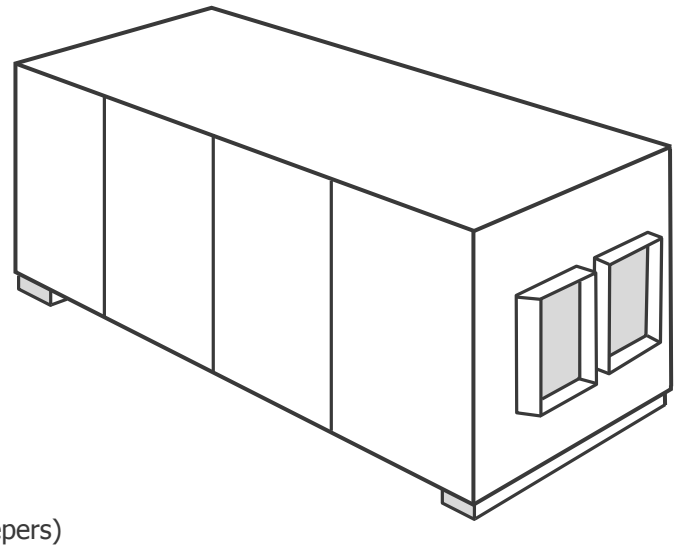
Mounting the 1500

Option 1



Unit can be suspended with "U" channels and Threaded Rod

Option 2



Unit can be placed on blocks (sleepers)

Roof Curb Assembly

Frame Assembly

1. Take one end piece (locking tabs) and one side piece (slots). Stand both pieces vertically on the floor or roof. See Figure 1.
2. Raise slightly the corner of the end piece (locking tabs) and mate with side piece (slots), ensuring that lower locking tab with leading edge is through slot opening. See Figure 2.
3. Push down on top edge of end piece. Ensure that all 3 of the locking tabs are feeding into each corresponding slot. Once both pieces are flush, the process is complete. See Figure 3.
4. Drive one spike provided into wood nailer strips at each corner. See Figure 3.

Frame Application and Location

This roof mounting frame provides necessary support when the unit is installed. The frame can be installed directly on deck having adequate structural strength or on roof supports under deck.

Securing the Frame

To ensure proper mating with unit, it is critical that mounting frame be squared to the roof, as follows:

1. With frame situated level in desired location on roof trusses, tack weld one corner of frame.
2. Measure frame diagonally from one corner to the opposite corner. Repeat with the remaining two corners. These dimensions must be equal for the frame to be square.
3. It is extremely important to sight frame from all corners to ensure that the frame is not twisted across top side. Shim frame under any low sides.
4. After frame has been squared, straightened and shimmed, weld or attach frame securely to roof.

MAX. SLOPE TOLERANCE: 1/16" per linear foot in any direction.

Note specification of duct location on bottom of HRV when positioning cross members (duct cavity).

See next page.

Figure 1

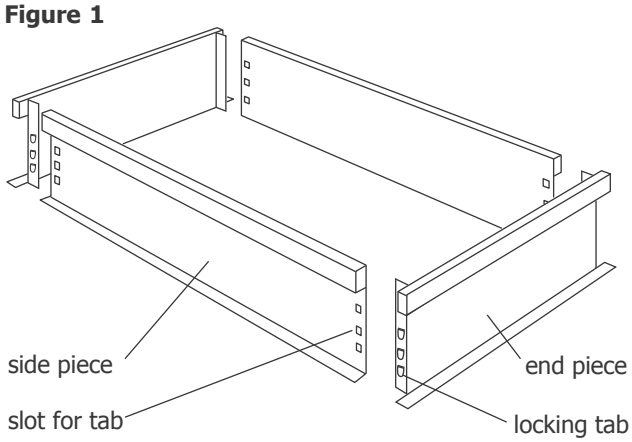


Figure 2

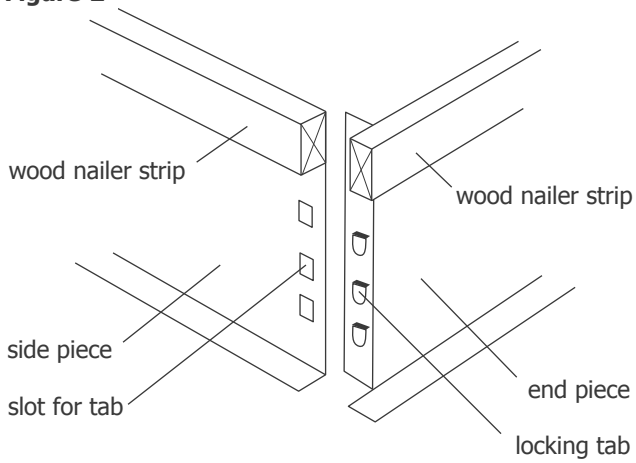
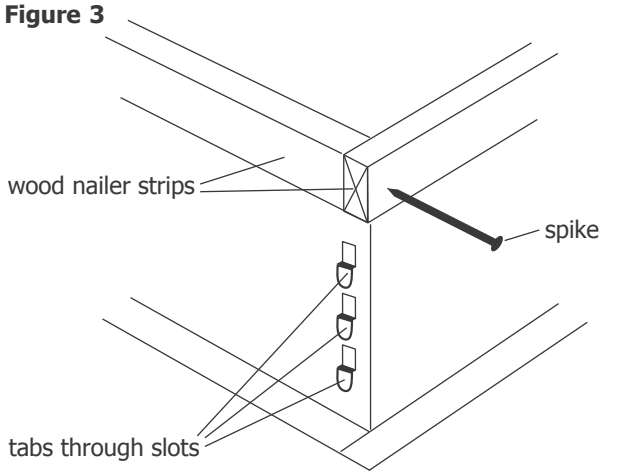
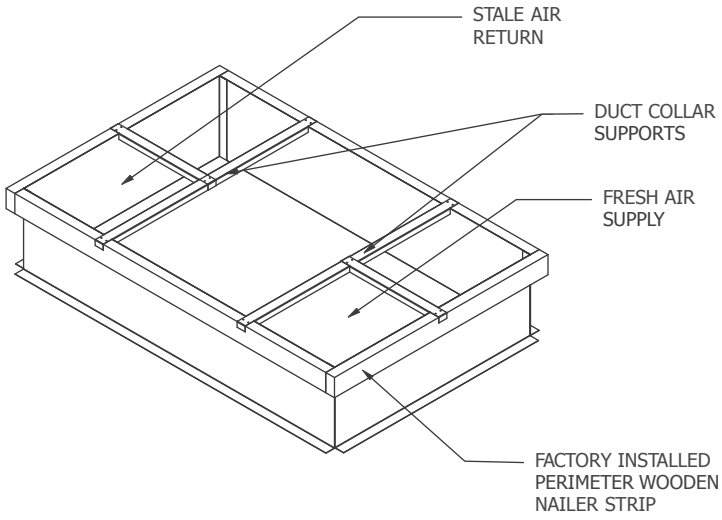


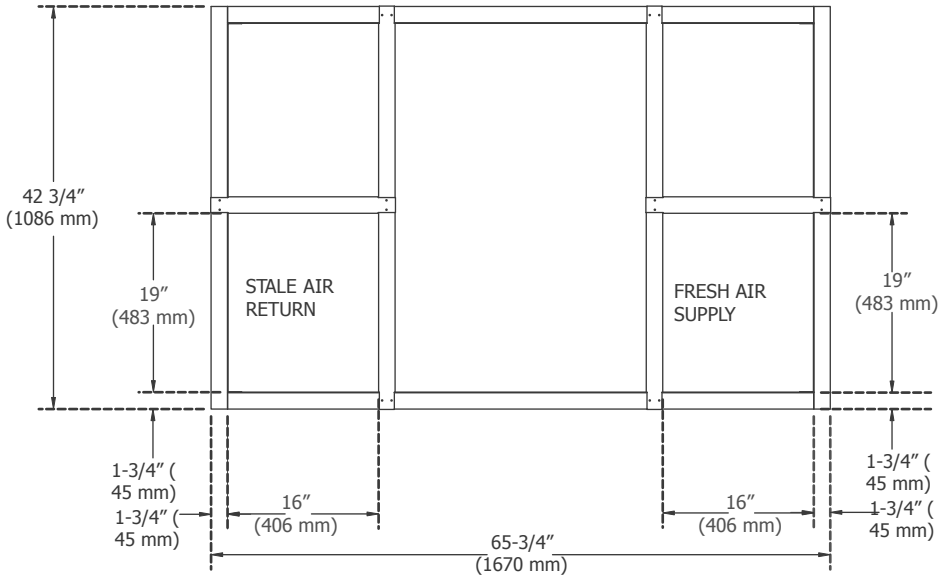
Figure 3



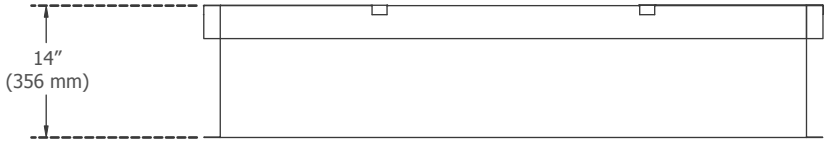
Roof Curb Detail



TOP VIEW



SIDE VIEW



Ducting - General

Drains

Connect the drain pans in the bottom of the HRV to a drain line fastened to the holes provided. Create a "P" trap to prevent odors from being drawn through. Make sure the drain line slopes down to drain properly and if this is not possible a condensate pump will be required for removal of the water. Note that stagnant water is a leading cause of indoor air quality problems; confirm drainage after installation by pouring water into trays. Drain line must be installed where it will not freeze.

The Ductwork System

A well designed ducting system will allow the HRV to operate at its maximum efficiency. Avoid the use of under-sized ducting and sharp radius bends and tees which can significantly increase the system pressure drop and reduce the air flows.

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.

* Consult local Codes

To minimize pressure drop and noise, galvanized metal ducts sized for 725 fpm (3.68 m/s) (maximum velocity) 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 duct. Use flexible duct connectors at the HRV 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.

Outside Weatherhoods

The 1500E-ECM is shipped with 2 weatherhoods inside the cabinet which attach to the outer ends of the cabinet using bolts provided. The 1500I-ECM requires hoods to be built elsewhere and provided by the contractor.

NOTE: It is extremely important to design and install the fresh air intake in an area where the hoods will gather the freshest air, free from restriction.

Recommended:

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

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 snow penetration of the system is minimized when the airflow does not exceed 750 FPM (3.81m/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 HRV to the weatherhoods. All ducting must meet ULC Class 1 Fire Rating.

A minimum R value of insulation should be equal to 4 (RSI 0.75), or as stated in local codes.

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 HRV and the weatherhood.

Warm-side Ducting - General

Ducting from the HRV to different areas within the building should be galvanized metal whenever possible.

To minimize airflow losses in the ductwork system, all ducts should be as short as possible and with as few bends or elbows as possible. 45Þ elbows are preferred to 90Þ elbows, whenever possible. Use Y tees instead of 90Þ tees whenever possible.

All duct joints must be fastened securely and wrapped with a quality duct tape to prevent leakage. We recommend aluminum foil tape.

Ducting - Distribution

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. Return air suction points should be located at the opposite side of the room to 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 that they are not dispersed through the building nor allowed to increase to toxic concentration levels. The heat recovery 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 placed so as to remove the contaminants while not allowing them to enter the breathing zone of the occupants.

For contaminants that are 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 the chemical data sheets.

Fresh Air Supply System

The fresh air supply ductwork from the HRV may be directly connected to the return air duct of the forced air system. When directly connected it is recommended that the air handler blower be in constant operation to move the fresh air about the building Also, it is advisable to include a short length of fabric flex duct or other non-metallic connector in this hard ducted line in order to keep the HRV 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 HRV, the designer and installer should be aware of local codes that may require smoke detectors and/or fire stats in the HVAC or HRV ductwork. Because an HRV is designed to bring fresh air into the building, structures may require a supply voltage interrupt when smoke or flame sensors are triggered or 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. Information on electric or hydronic heaters is available through Airia.

Electrical Connections

System is 240V, 1 phase, 60 Hz. This unit meets all local codes and requirements.

It is STRONGLY recommended that an electrical disconnect be installed prior to the HRV, and that it is turned off and locked out before servicing the unit.

All electrical connections should be made by a qualified electrician.

Two (2) knock-outs are provided. One is to be used for line voltage, and the other one for 24V control wires.

Balancing

The 1500I-ECM/1500E-ECM has been programmed to provide constant airflow on each airstream for external static pressures of up to 1" w.g.

Within this range, each airflow can be adjusted as described in "Adjusting the Airflow" section of this manual.

Beyond 1" w.g. of external static pressure, a balancing damper may be required on the higher airflow. See "Pitot Tube Air Flow Balancing" in this manual.

The Integrated HVAC System

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

In the balanced airflow system, the HRV/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 HRV/ERV.

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

By operating the HRV/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 HRV/ERV as it is drawn back to the air handler. Fresh air supplied by the HRV/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 HRV/ERV supply and exhaust ducts between the return air plenum and the HRV/ERV.

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

CAUTION ⚠

When interlocking a rooftop unit with an HRV/ERV, care must be taken to ensure the fans of both units operate in the correct rotation.

Figure A

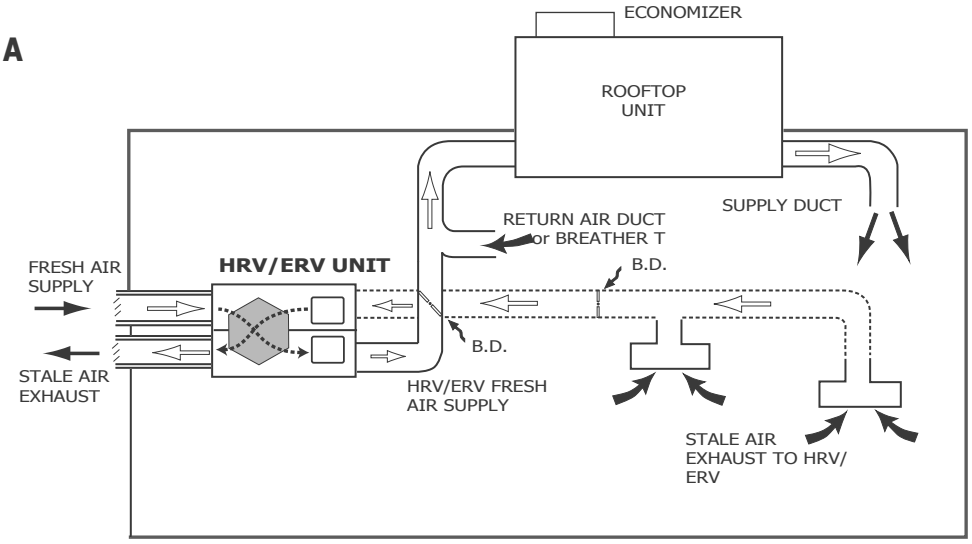
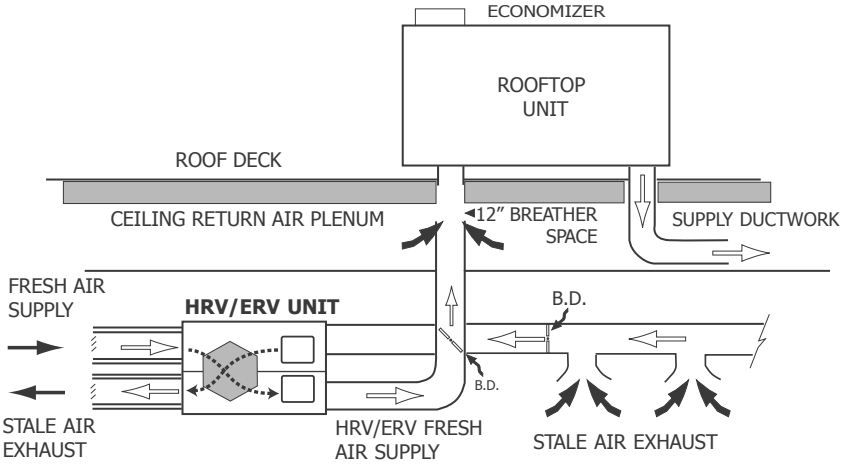


Figure B

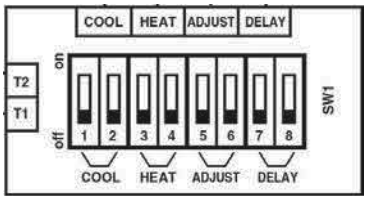


Adjusting the Airflow

Speed Selection on the Model 1500 IFD/EFD

The 1500I-ECM and 1500E-ECM are equiped with ECM motors that can be programmed to maintain various different airflows. The 1500I-ECM and 1500E-ECM have three selectable speeds (High medium and low). Each of these speeds can be further adjusted to obtain the desired airflow. This is done on the ECM circuit board located within the electrical box.

Both motors contain a separate ECM circuit board to allow for independent adjustment of the motors. The "adjust" tap will change the airflows on all three of the speeds. Please note that this unit has been factory set to obtain 1500CFM at 1" w.g. external static pressure. Adjustment of the high speed settings will produce higher flows only in situations where the external static pressure is below 1" w.g.



HIGH SPEED ADJUSTMENT (HEAT TAP)

SWITCH		NOMINAL AIR FLOW (CFM)
3	4	
OFF	OFF	1500
ON	OFF	1700
OFF	ON	1300
ON	ON	1000

MEDIUM SPEED ADJUSTMENT (DELAY TAP)

SWITCH		NOMINAL AIR FLOW (CFM)
7	8	
OFF	OFF	1100
ON	OFF	1300
OFF	ON	900
ON	ON	750

LOW SPEED ADJUSTMENT (COOL TAP)

SWITCH		NOMINAL AIR FLOW (CFM)
1	2	
OFF	OFF	700
ON	OFF	900
OFF	ON	500
ON	ON	500

ALL SPEED ADJUSTMENT (ADJUST TAP)

SWITCH		SPEED ADJUSTMENT
5	6	
OFF	OFF	**NO CHANGE**
ON	OFF	**15% UP**
OFF	ON	**15 % DOWN**
ON	ON	**N/A**

Defrost Time Adjustment

DIP switch # 8 (located on the Aircom circuit board) will adjust the defrost time. Do not change any of the other DIP switch settings.

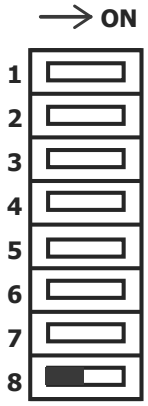
⚠ ATTENTION

Change DIP switch #8 only as illustrated on this page. Do not adjust any other switches.

Factory Setting (DIP Switch 8 OFF)

The sequence of events for this defrost mode at 27°F (-3°C) is:

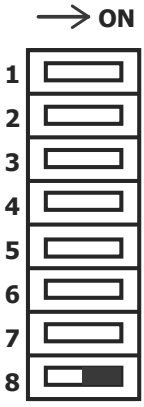
1. Both fans will stop for one minute.
2. The HRV exhaust motor will initiate and operate for 4 minutes.
3. Both HRV motors (exhaust and intake) will operate for 30 minutes.
4. The cycle repeats.



Increased Defrost Time (DIP Switch 8 ON)

Cooler climates may require more aggressive defrost time. The sequence of events for this defrost mode at 27°F (-3°C) is:

1. Both fans will stop for one minute.
2. The HRV exhaust motor will initiate and operate for 4 minutes.
3. Both HRV motors (exhaust and intake) will operate for 20 minutes.
4. The cycle repeats.



Pitot Tube Air Flow Balancing - Commercial

It is necessary to have balanced air flows in an HRV. 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 HRV 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 HRV 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 backdrafting 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 HRV'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 HRV 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 HRV using a Pitot tube, advantageous in situations when flow stations are not installed in the ductwork. Procedure should be performed with the HRV 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 HRV itself and the forced air furnace or air handler if applicable. This will provide the maximum pressure that the HRV 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

$$= [3.14 \times (6" \div 12)^2] \div 4$$

$$= 0.2 \text{ square feet}$$

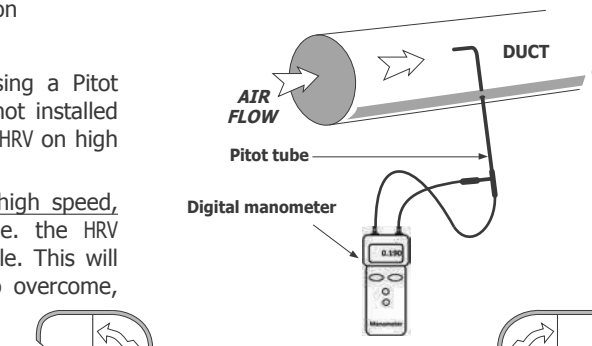
The airflow is then:
640 ft./min. X 0.2 square feet = 128 cfm

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

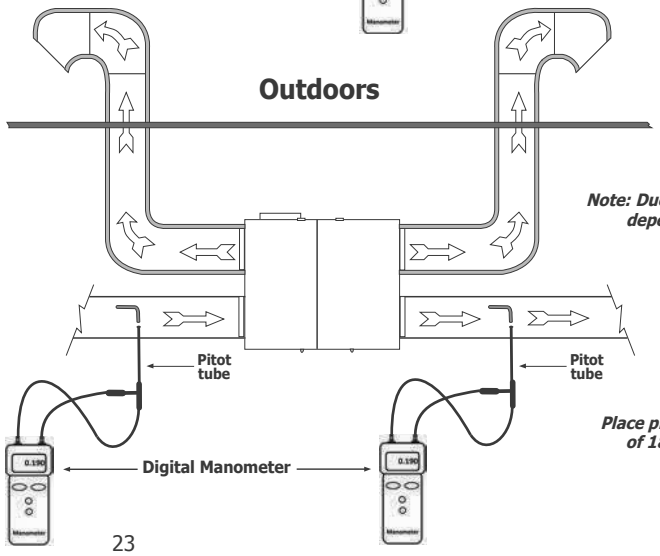
DUCT DIAM. (inches)	**CROSS SECTION AREA** (sq. ft.)
5 (127 mm)	0.14
6 (152 mm)	0.20
7 (178 mm)	0.27

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



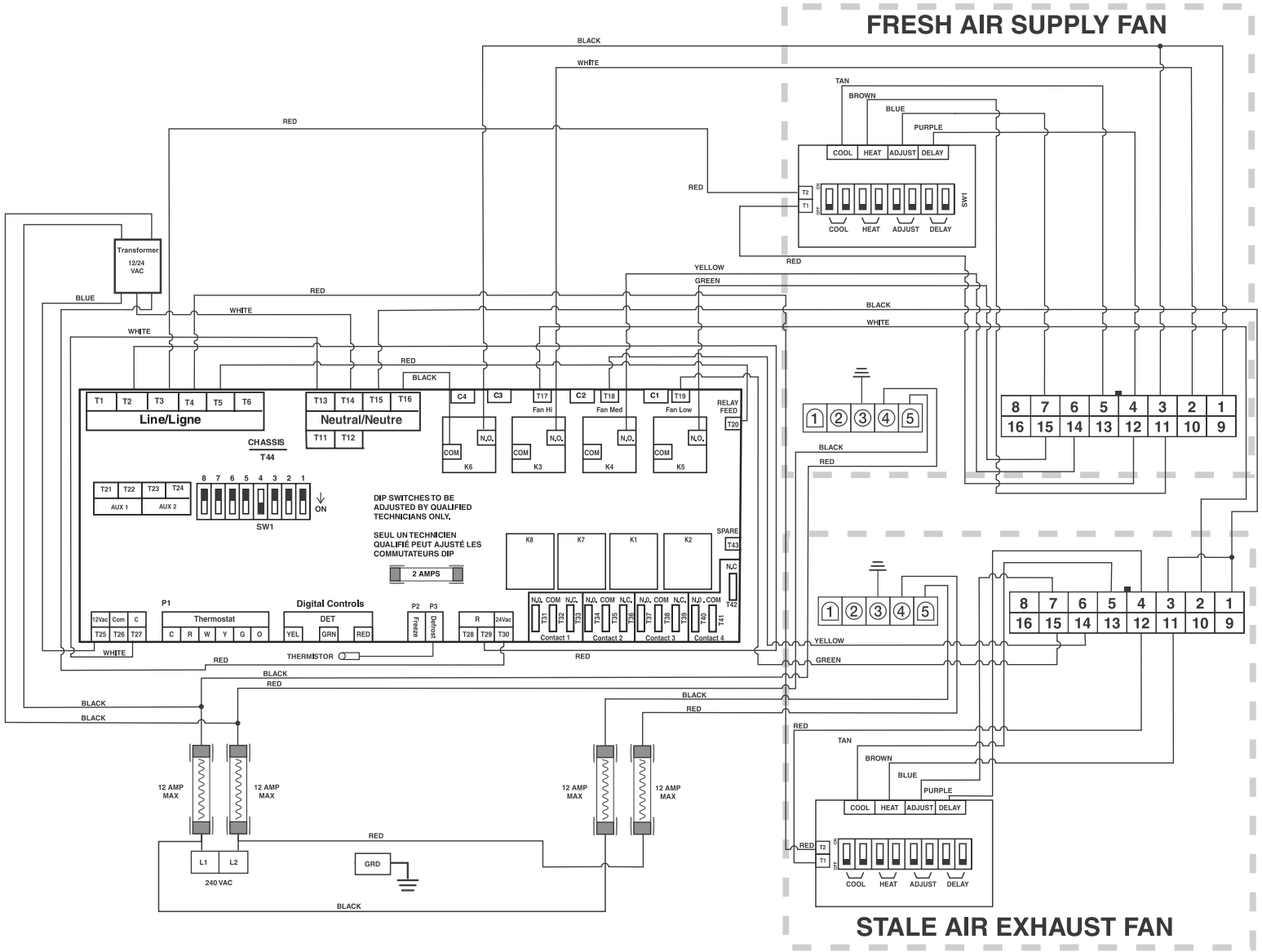
Pitot Tube Air Flow Balancing Kit
c/w digital manometer, Pitot tube, hose and tool bag.
PART NO. 99-BAL-KIT



Note: Duct connections may vary, depending on model.

Place pitot tube a minimum of 18" from blower or elbows

CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY



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COMMERCIAL LIFEBREATH®
HEAT RECOVERY VENTILATORS

• Two Year Limited Warranty • 15 Year Core Warranty

AIRIA BRANDS INC.® (AIRIA) warrants to the 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 15 YEAR WARRANTY is given to the LIFEBREATH® core should it develop a condensation leak or become perforated due to corrosion caused by 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 labor 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 labor at their own expense: or
(b) if the product was purchased from a dealer, then the dealer will supply labor 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 AIRIA.

MODEL NO.: _____

UNIT SERIAL NO.:_____

INSTALLED BY: _____

DATE: _____

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