



INSTALLATION MANUAL



ENERGY RECOVERY VENTILATOR

Model: FC-150EC-ERV

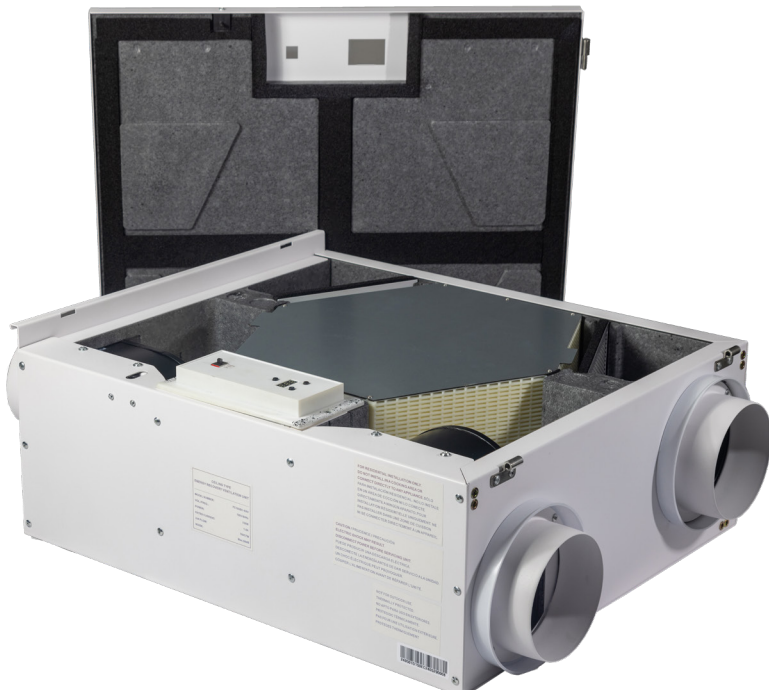
READ THESE INSTRUCTIONS CAREFULLY AND COMPLETELY BEFORE PROCEEDING WITH THE INSTALLATION

This device **MUST** be installed by a qualified agency in accordance with the manufacturer's installation instructions. The definition of a qualified agency is: any individual, firm, corporation or company which either in person or through a representative is engaged in, and is responsible for, the installation and operation of HVAC appliances, who is experienced in such work, familiar with all the precautions required, and has complied with all the requirements of the authority having jurisdiction. Please retain these instructions after installation.

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The Energy Recovery Ventilator you have purchased has been designed to be simple to install, operate and maintain. **Read this manual before you install the recovery ventilator.**

This product should be installed according to local and national codes and standards.



Parts included in Energy Recovery Ventilator package:



1. ERV Unit
2. Two (2) Washable MERV 3 Air Filters
3. Power Cord
4. Mounting Brackets and Screws
5. Installation Manual



**HERV-C2
Wall Control**



FAVC



FCMC

Optional and additional parts:



1. HERV-C2 Wall Control (602613250)
2. Fresh Air Ventilation Control (FAVC) (602600100)
3. Fresh Command Multifamily Control (FCMC) (602612300)
4. Suspension Mounting Kit (602613350)
5. Washable Filter (2-pack) (730009150)
6. MERV 8 Filter (730009100)
7. MERV 13 Filter (730009300)

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SAFETY CONSIDERATIONS

WARNING: Identifies and instruction which, if not followed, might cause serious personal injuries including possible death.

CAUTION: Identifies an instruction which, if not followed, may severely damage the unit and/or it's components.

NOTICE: Prior to installing, serious consideration must be taken to ensure this ventilation system will operate properly if integrated to any other type of mechanical system, i.e. a forced air system, or an air handling unit. To ensure proper operation and compatibilities of both systems, it is required that the airflows of the Energy Recovery Ventilator (ERV) be balanced, by following the procedures found in this manual.

NOTICE: Do not install a cooking area or connect directly to any appliance. Turn off all integral disconnects before servicing.

LIMITATIONS: For residential (domestic) installation only. Installation work and electrical wiring must be done by a qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction codes and standards.

WARNING

1. Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer at the address or telephone number listed in the warranty.
2. Before servicing or cleaning the ERV system, always remove the power cord from the AC wall outlet.
3. This unit is not designed to provide combustion and/or dilution air for fuel-burning appliances.
4. Do not use ventilation system for outdoor application.
5. Do not use the ventilation system for removal of flammable fumes, hazardous or explosive materials and vapors, gases or connect directly to any appliances.
6. Always assess the operation of the ventilation system on how it may interact with vented combustion equipment (i.e. Gas Furnace, Oil Furnace, Combustion, Appliances, etc.)
7. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
8. To reduce the hazards of electric shock or fire, do not perform any service to the ERV system other than those stated in the operating manual instructions.
9. To reduce the risk of electric shock, this ventilation system (ERV) comes equipped with a 3-prong plug-in. This plug will fit a polarized outlet only one way.
10. Do not pull or twist power cord when disconnecting it from the ventilation system. Grasp the plug firmly, not the cord.
11. Do not modify the power plug in any way; if modified, risk of electric shock or fire ore even damage to the unit may occur.
12. This unit must be grounded. The power supply cord has a 3-prong grounding plug for your personal safety. It must be plugged into a mating 3-prong grounding receptacle, grounded in accordance with the national electrical code.
13. Use a dedicated AC 120V outlet only.
14. To prevent injuries, do not operate the ventilation system, while servicing or maintaining. There are impeller wheels turning at a very high speed that must fully stop rotating prior to accessing the inside of the unit.
15. Do not obstruct or cover the air intake or air outlet of the ventilation system.
16. Do not modify, repair, or disassemble this system. These tasks are to be performed by authorized serviced personnel only. Fire, electrical shock and/or bodily injury may occur if these warnings are not followed.
17. Do not use for swimming pool/spa applications.
18. When performing installation, servicing, or cleaning these units, it is recommended to wear safety glasses and gloves.
19. When applicable local regulation comprise more restrictive installation and/or certification requirements, the requirements prevail on those of this document and the installer agrees to conform to these at his own expenses.

CAUTION:

1. To avoid premature clogged filters, turn OFF the unit during construction or renovation.
2. Please read specification label on the product for further information and requirements.
3. Be sure to duct air outdoor - Do not intake/exhaust air into spaces within walls or ceiling or attics, crawl spaces, or garage.
4. Intended for residential installation only in accordance with the requirements of NFPA 90B.
5. Do not run any air ducts directly above or closer than 2 ft. to any furnace or its supply plenum, boiler, or other heat producing appliance. If the duct has to be connected to the furnace return plenum, it must be connected not closer than 9' or 10" from this plenum connection to the furnace.
6. The ductwork is intended to be installed in compliance with all local and national codes that are applicable.
7. When leaving the house for a long period of time (more than two weeks). a responsible person should regularly check if the unit operated adequately.
8. If the ductwork passes through an unconditioned space (e.g.: attic), the unit must operate continuously except when performing maintenance and/or repair. Also, the ambient temperature of the house should never drop below 65°F.

PRODUCT OVERVIEW

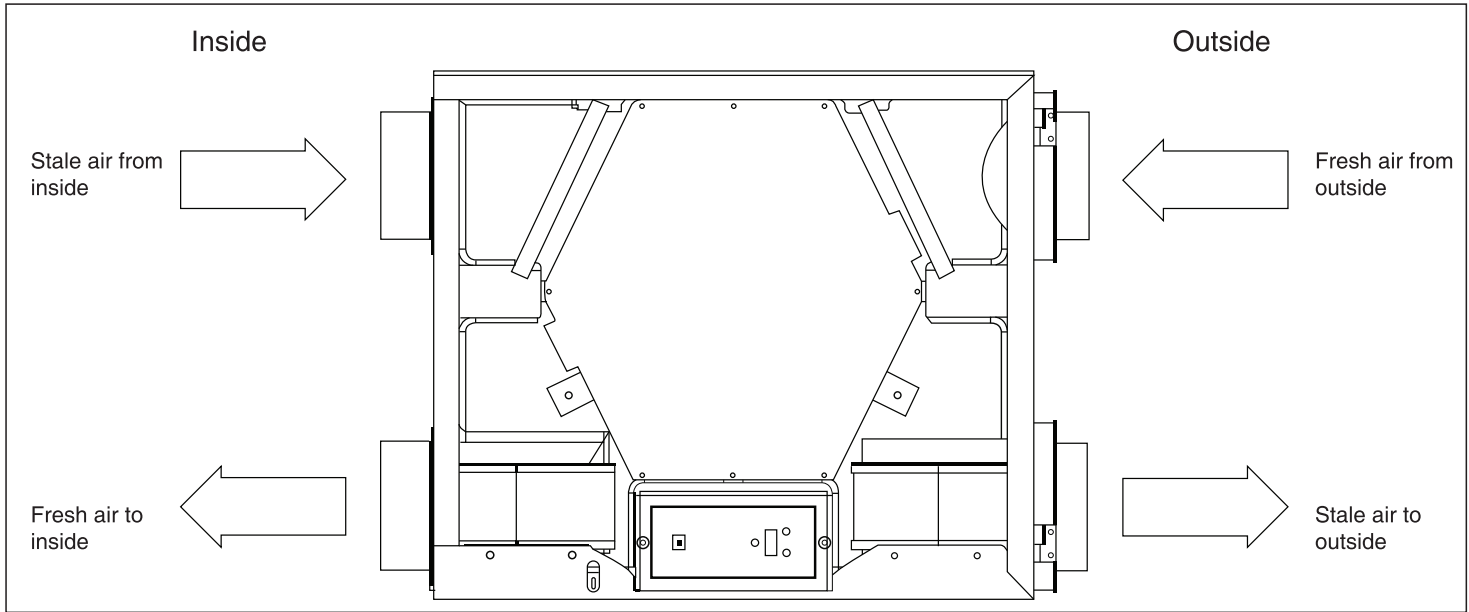


Figure 1: ERV Airflow

PRODUCT SPECIFICATIONS

ENERGY RECOVERY VENTILATOR

MODEL	PART NUMBER	DUCT SIZE	POWER SUPPLY	POWER RATED	AMPS	AIRFLOW
FC-150EC-ERV	602613115	5" (125mm)	120V/602HZ	157W	2.1 A	145 CFM @ 0.2 in WG

DIMENSIONAL DATA

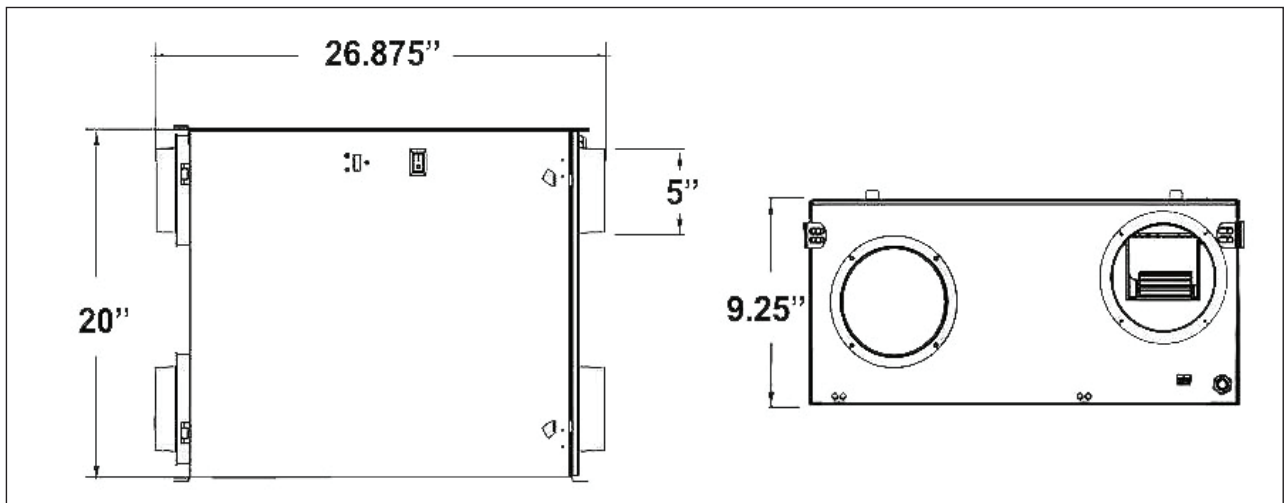


Figure 2: ERV DIMENSIONS



TYPES OF INSTALLATIONS

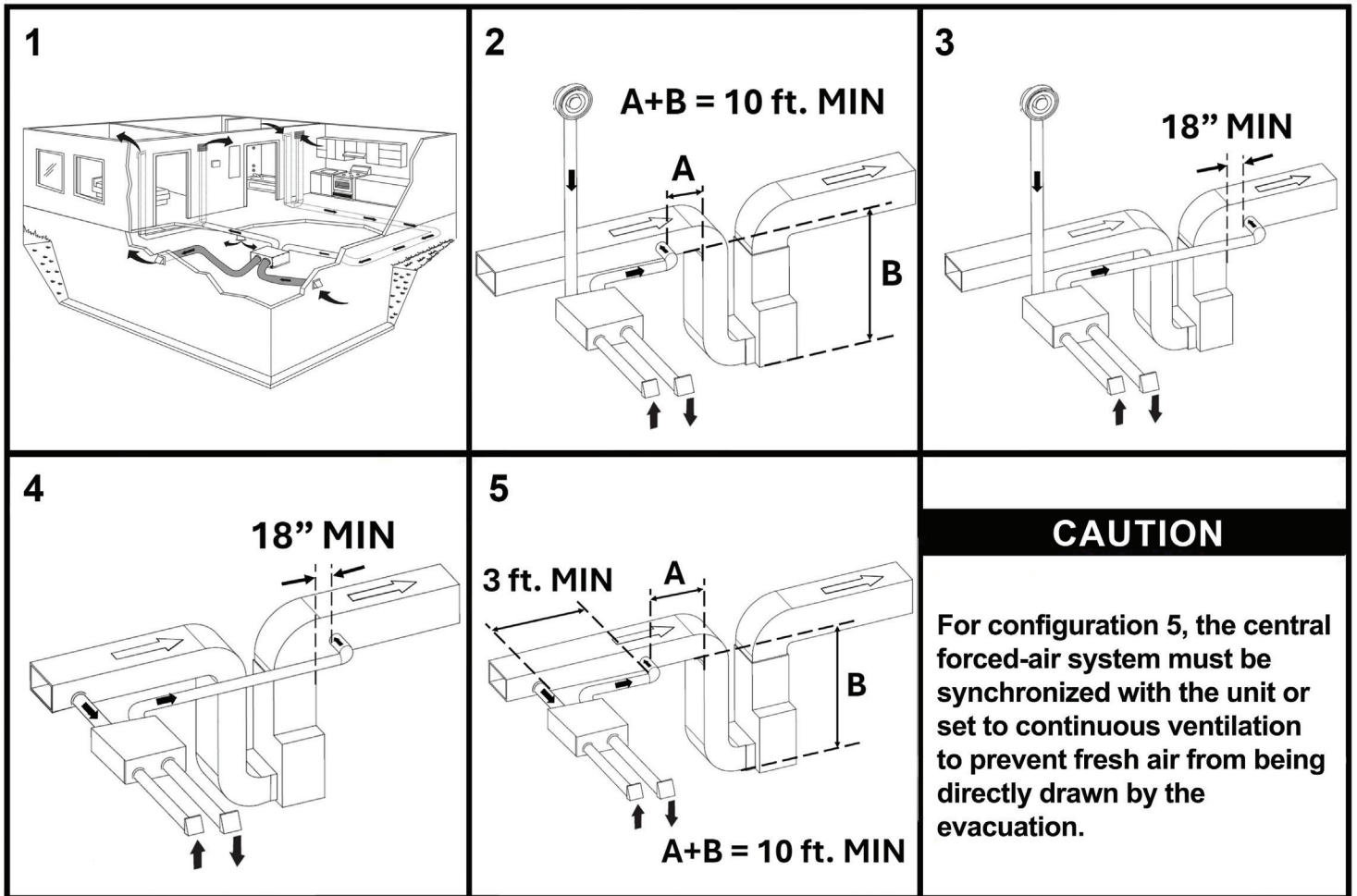


Figure 3: ERV Installations

FINDING A SUITABLE INSTALLATION LOCATION

- A mechanical room or as close to an outside wall as possible. This will ensure a short run of insulated flexible duct.
- A space where the ambient temperature is kept between 65°F and 104°F.
- A space to provide easy access to the interior of the unit, for quarterly and annual maintenance.
- Away from hot chimneys and other fire hazards.
- Allow for a power source within 3 feet (standard 3-prong grounding outlet) and a separate circuit breaker is also recommended.
- Install in a place with sufficient strength and stability. Beams, ceilings, and other locations should be capable of fully supporting the weight of the unit. Insufficient strength is dangerous.
- Where nothing will block the ducting and air passage.



MOUNTING THE VENTILATOR

The unit is designed to be mounted against the wall, between ceiling joists, and/or suspended from the ceiling.

WARNING: For suspended installation, use suspension bolts. Confirm that the ceiling is strong enough to support the weight of the unit. Do not proceed if it is not strong enough. If there is a risk, reinforce the ceiling before installing the unit.

Ceiling mounting fasteners are not included. Select the appropriate fasteners depending on the material of the mounting surface and the weight of the unit.

IMPORTANT: Minimum installation requirements:

- A. Minimum two 2" x 4" (50.8 mm x 101.6 mm) wood wall studs and minimum 3/8" (9.5 mm) thick drywall is required to secure the ERV brackets.
- B. Support for weight of 80 lbs., which includes ERV, duct connections, and accessories. Proper installation requires that the unit be secured to the wall. If not wall studs are available, please secure 3/4" plywood to wall studs and then fasten the wall mounting bracket to plywood.

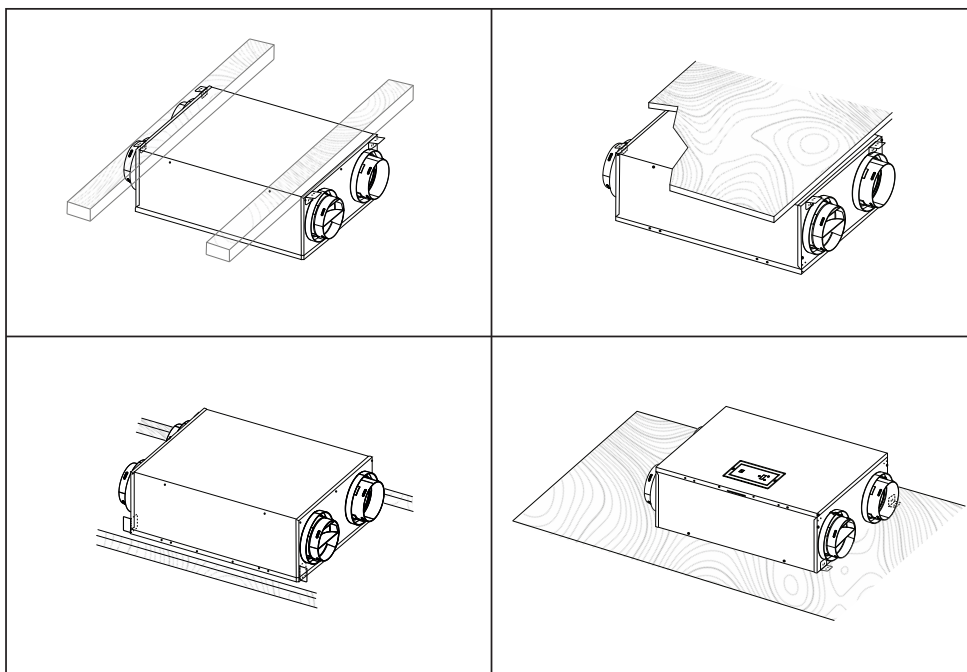


Figure 4: ERV Mounting

PLANNING THE DUCTWORK

To achieve the best performance of the unit and minimize static pressure losses:

1. Plan for the minimum number of bends and joints.
2. Keep the length of the ducts to a minimum.
3. Minimum straight air duct length:
 - A. Equal to 1 air duct diameter on the intake side.
 - B. Equal to 3 air duct diameters on the outlet side.
4. Do not ventilate crawl spaces or cold rooms. Do not attempt to cover the exhaust air from a dryer or range hood.
5. If the house has two floors or more, plan for at least one exhaust register on the highest lived-in level.



POWER CONNECTION

The unit comes with a 3-prong plug of power. A pigtail power cord can be purchased upon request.

NOTE: Electrical wiring must be done by qualified personnel in accordance with all applicable codes and standards.

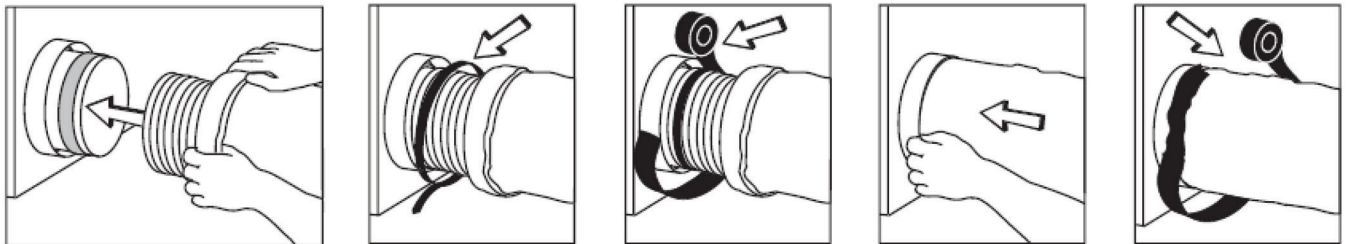
DUCT CONNECTION

WARNING: When performing duct connections, always use approved tools and materials. Respect all corresponding laws and safety regulations. Please refer to your local building code.

CAUTION: When performing duct connections to the furnace supply duct, this duct must be sized to support the additional airflow produced by the ERV. Also, use a steel duct. For a Return-Return installation, the furnace blower must be in operation when the ERV is in operation.

Do not use screws to connect the rigid ducts to the ports.

- Connect ducting according to installation directions.
- Secure duct to port and seal connection to ensure it is airtight.
- Use insulated ducts for outdoor ducts and in unconditioned space.



DO NOT Connect the ducting as shown below.

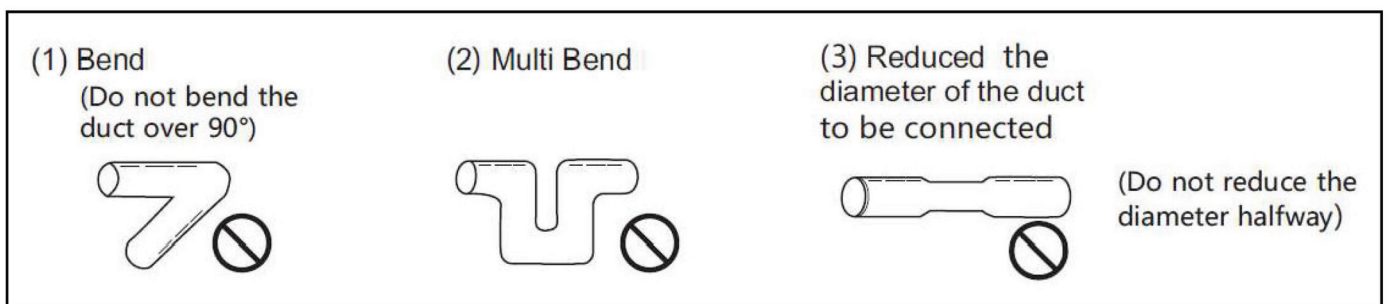


Figure 5: Duct Connections

CONTROL
SOLUTIONS





CONTROLS

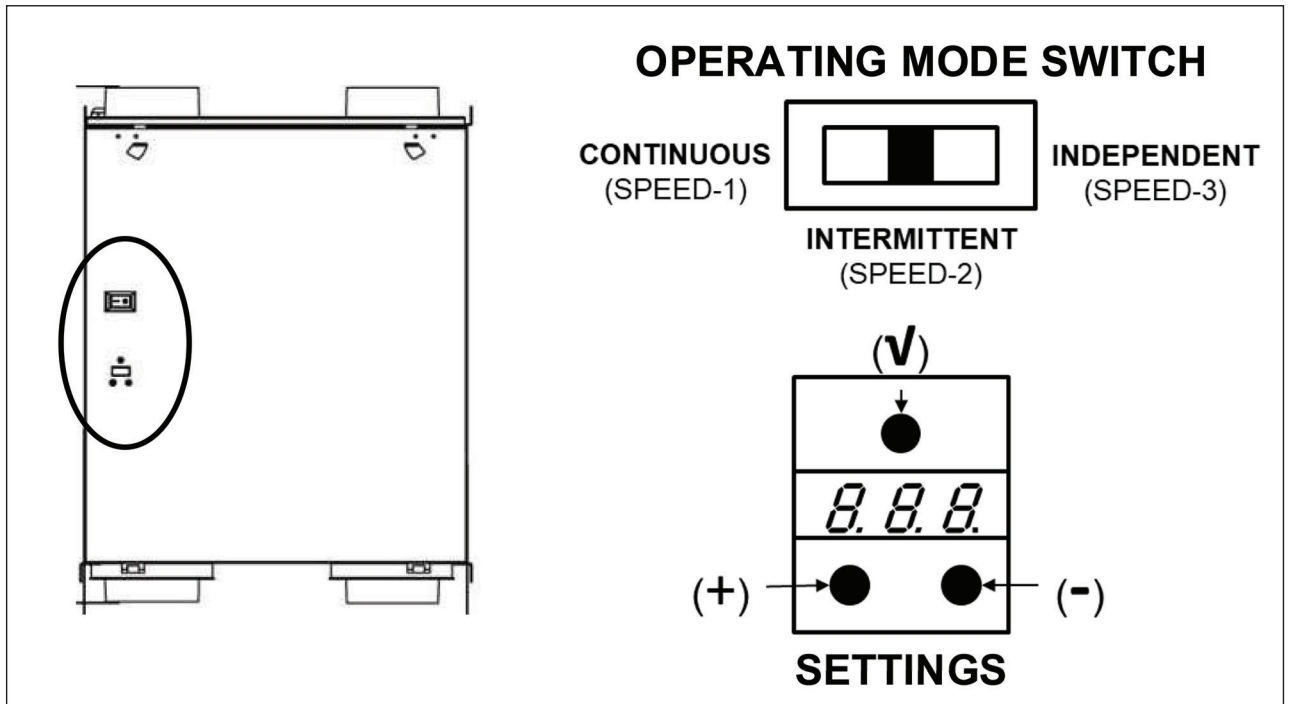


Figure 6: ERV Controls

Operating Mode Logic

The unit has a three-position MODE switch, which doubles as the fan speed setting.

- Set FAN SPEED-1 in CONTINUOUS mode
- Set FAN SPEED-2 in INTERMITTENT mode
- Set FAN SPEED-3 in INDEPENDENT mode

Continuous Mode (Speed-1 in settings)

- ERV will operate continuously on SPEED-1 until input from external controls received
- Input from AHU ON: ERV fans change to SPEED-3
- Input from AHU OFF: ERV fans change SPEED-1
- When connected to wall control: See wall control manual

NOTE: When wall control is connected, and ACTIVE, ERV will not respond to AHU input.

Intermittent Mode (SPEED-2 in settings)

- ERV's fans are OFF until the unit received input from external controls (AHU or wall controls)
- Input from AHU ON: ERV fans change to SPEED-2
- When connected to wall control: See wall control manual

NOTE: When wall control is connected, and ACTIVE, ERV will not respond to AHU input.

Independent Mode (Speed-3 in settings)

- Fans operate continuously on SPEED-3
- Fan speed will not respond to AHU or wall control input

All Modes

- When wall control in Standby, ERV operated in MODE according to the switch and waits for input
- Defrost Mode overrides any AHU or wall control commands.

NOTE: ERV can be used with HVAC system, wall control not required.



SETTINGS

Press (√) to enter settings. Cycle screens with (+) / (-). Press (√) to select setting, (+) / (-) to change.

NOTE: Press and hold (√) for 4 seconds to exit settings and back to Operation, showing inlet temperature. The unit will not respond to external inputs when in settings.

Set fan SPEED-1/2/3 by changing the operating modes: CONTINUOUS / INTERMITTENT / INDEPENDENT

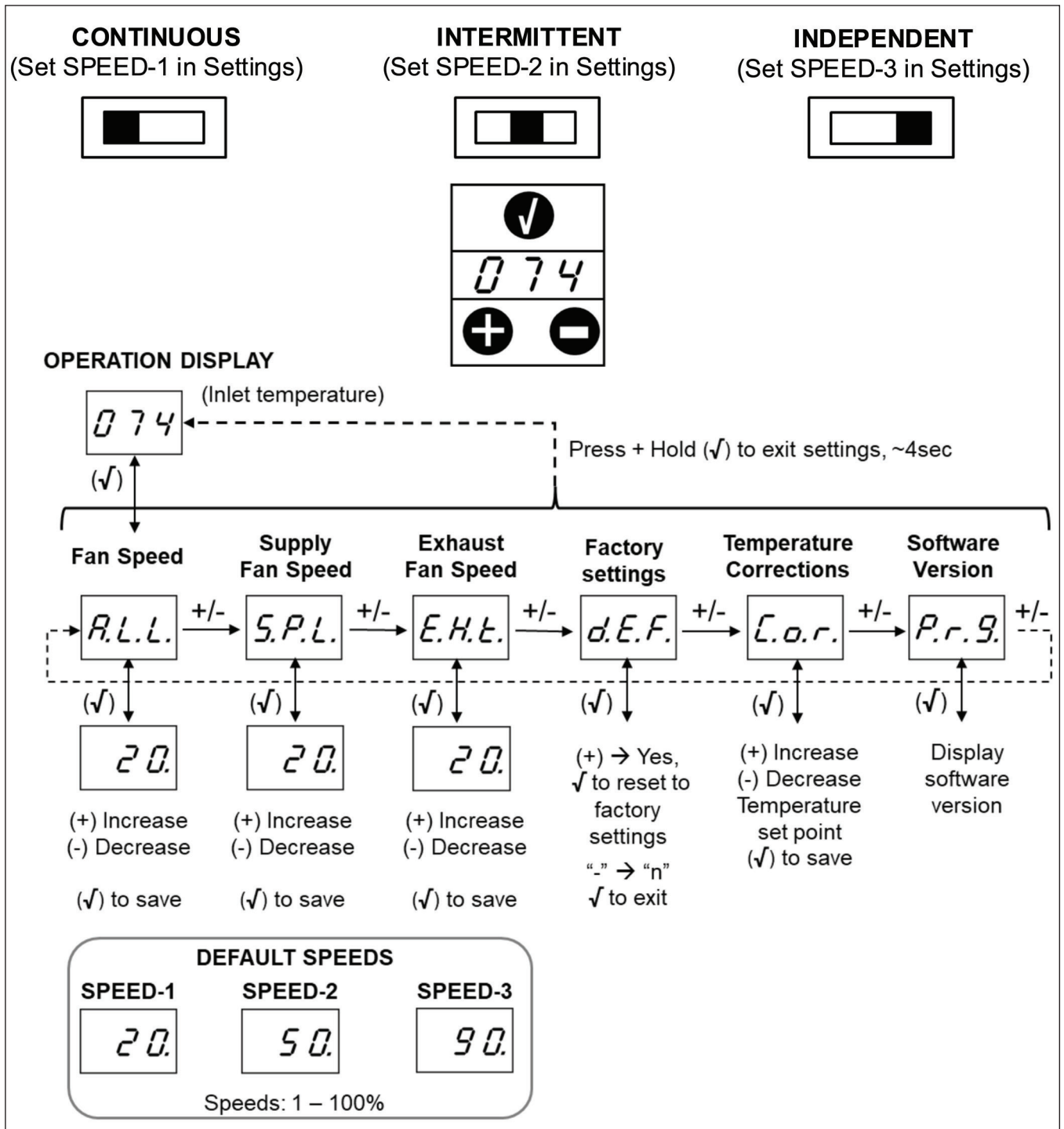


Figure 7: ERV Settings



SETTINGS - CONTINUED

Set Supply and Exhaust Fan Speed for the current mode

Fan speed in ALL makes Supply and Exhaust fan speeds equal.

- Set fan SPEED-1 in CONTINUOUS mode
- Set fan SPEED-2 in INTERMITTENT mode
- Set fan SPEED-3 in INDEPENDENT mode

Press (**√**) to view/change fan speed. Press (+) and (-) to adjust fan speed.

NOTE: Press and hold (**√**) to exit settings menu and return to operating MODE.

A.L.L.

(+) or (-)

Set Supply Fan Speed for the current mode

Adjust Supply fan speed independently to Exhaust fan speed.

Press (**√**) to view and (+) and (-) to change Supply fan speed. Press (**√**) to save.

- CONTINUOUS mode changes SPEED-1 settings
- INTERMITTENT mode changes SPEED-2 settings
- INDEPENDENT mode changes SPEED-3 settings

NOTE: Press and hold (**√**) to exit settings menu and return to operating MODE.

S.P.L.

(+) or (-)

Set Exhaust Fan Speed for the current mode

Adjust Exhaust fan speed independently to Supply fan speed.

Press (**√**) to view and (+) and (-) to change Exhaust fan speed. Press (**√**) to save.

- CONTINUOUS mode changes SPEED-1 settings
- INTERMITTENT mode changes SPEED-2 settings
- INDEPENDENT mode changes SPEED-3 settings

NOTE: Press and hold (**√**) to exit settings menu and return to operating MODE.

E.H.T.

(+) or (-)

Restore to Factory Settings

To reset to factory settings (default settings) press (**√**) then select <-Y-> using (+).

Press (**√**) to confirm.

To exit without resetting factory settings, select <-n-> using the (-) and press (**√**).

NOTE: Press and hold (**√**) to exit settings menu and return to operating MODE.

d.E.F.

(+) or (-)

Temperature Corrections

To correct the temperature value communicated by the outdoor inlet air temperature sensor, press (**√**), change the temperature setpoint using the (+) and (-), then press (**√**) to save.

NOTE: Press and hold (**√**) to exit settings menu and return to operating MODE.

C.O.R.

(+) or (-)

Current Software Version

Press (**√**) to display the current software version.

NOTE: Press and hold (**√**) to exit settings menu and return to operating MODE.

P.r.g.



CONTROL CONNECTION

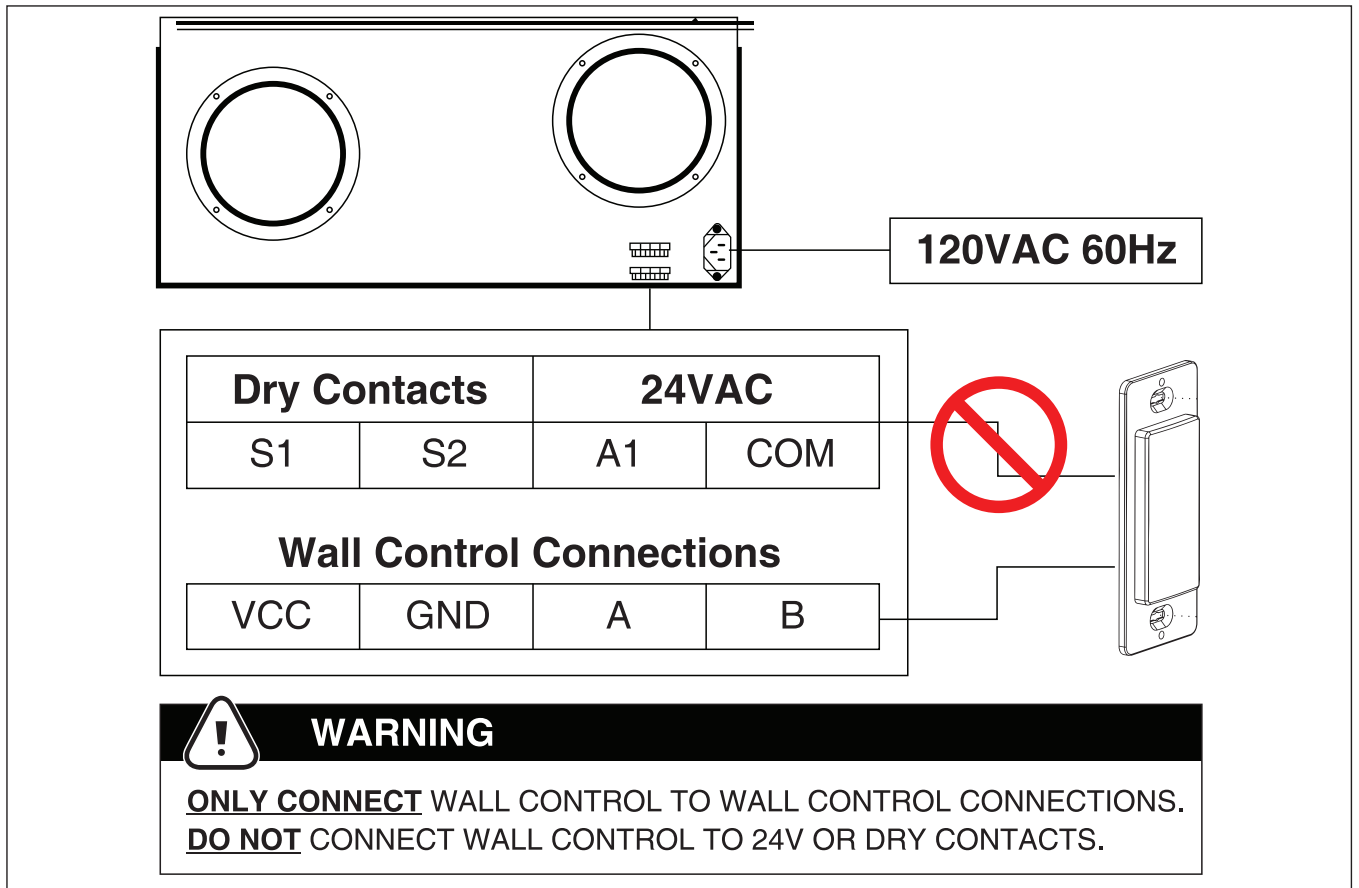


Figure 8: ERV Control Connections

CONTROL LOGIC

NOTE: When the wall control is connected to the ERV and ACTIVE, the ERV will only respond to the wall control. The ERV will not respond to inputs from the 24VAC or Dry Contact signals when the wall controls are ACTIVE.

Ensure the wall controls are in STANDBY mode to enable input from 24VAC or Dry Contacts to activate the ERV.

NOTE: The ERV can operate with the HVAC system, wall controls are not required.



INSTALLATION AND GUIDE FOR WALL CONTROLLERS

Refer to the control user manual for wall control wiring and operation. The ERV will not respond to 24VAC or Dry Contacts input if the wall control is in ACTIVE mode.

NOTE: The ERV will only respond to Field Controls controls when connected to "Wall Control Connections" (VCC, GND, A, and B)

WARNING: Please ensure wiring is correct before connecting unit power

AHU HVAC 24VAC

- ERV input signal ON: Greater than 12VAC, up to 32VAC (24VAC nominal voltage)
- ERV input signal OFF: Less than 12VAC (electrical noise)

Dry Contacts:

- ERV input signal ON: Terminals are shorted
- ERV input signal OFF: Terminals are open

WARNING: Electrical wiring must be done by qualified personnel in accordance with all applicable codes and standards. Before connecting wires, unplug the unit or switch power off at service panel and lock service disconnecting means to prevent power from being switched on accidentally. Always wear safety glasses and gloves while performing these instructions.

CAUTION: Failure to comply with the following can cause erratic operation of the control and/or unit:

- Never install more than one main wall control per ventilation unit.
- Keep control low voltage wiring at least 1 foot (305 mm) away from motors, lighting ballasts, light dimming circuits and power distribution panels. Do not route control wiring alongside house power wiring.
- Ensure the wires are securely connected.
- Use normal cooper wire or low voltage wire to connect the unit with the controller.
- Under 32 ft. recommended, 90 ft. max length, or use shielded wire.

FREEZE PROTECTION

The Defrost mode prevents the core from freezing in cold seasons. Defrost is activated automatically by the fresh air inlet air temperature sensor and cannot be turned on or off.

When defrost mode is required, the unit will periodically switch from rated operation mode to defrost mode (the extract fan runs in SPEED-3, the supply fan is off) and vice versa according to the signaling from the temperature sensor.

The temperature conditions for this mode are described in the table below.

INCOMING FRESH AIR TEMPERATURE	ERV FAN OPERATION	
	DEFROST MODE (MIN)	DEFAULT MODE (MIN)
Above 23°F (-5°C)	-	MODE 1 / 2 / 3
23°F (-5°C) Down to 5°F (-15°C)	10	30
5°F (-15°C) Down to -17°F (-27°C)	10	20
Below -17°F (*27°C)	10	15

This manual may be downloaded and printed from the Field Controls website (www.fieldcontrols.com)

WARRANTY

For warranty information about this or any Field Controls product, visit:
www.fieldcontrols.com/

Field Controls Technical Support
1.800.742.8368
fieldtec@fieldcontrols.com



FIELDCONTROLS

Phone: 252.522.3031 • Fax: 252.522.0214
www.fieldcontrols.com



MAINTENANCE

Servicing of the unit is required 3-4 times per year. Besides general cleaning, the following operations are required:

1. **Filter Maintenance (3-4 times per year)**
Clean or replace the filters as often as required, but at least 3-4 times per year.
Clean the filter with running water or a vacuum cleaner.
2. **Recovery Core Maintenance (once per year)**
To clean the core of the unit, pull it out of the unit and clean it with a vacuum cleaner. The core can be cleaned with water. **DO NOT** use sharp objects, abrasive detergents, and aggressive solvents. Damage to the core can occur. Before reinstalling core, ensure the core is dry.
3. **Fan Maintenance (once per year)**
Clean the fans with a soft brush or dry cloth. **DO NOT** use water, abrasive detergent, sharp objects or solvents to clean the impeller.
4. **Supply Air Flow Inspection (twice per year)**
Check the intake grille twice per year and clean it if required.
5. **Air Ductwork Maintenance (once in 5 years)**
Clean or replace the air ducts periodically to maintain desired performance.

TIMEFRAME	MERV 3	MERV 8 OR MERV 13	CORE
3-6 MONTHS	Wash and dry	Replace	Clean with blower, not water
3-4 YEARS	-	-	Replace

TROUBLESHOOTING

SYMPTOM	POSSIBLE REASON	TROUBLESHOOTING PROCEDURE
ERV does not respond to external input (Wall control, 24VAC, or Dry Contact)	ERV still in Settings Menu	<ul style="list-style-type: none"> • Press and hold (√) to exit settings menu and return to operating MODE. • Display will show outdoor air inlet temperature. • Unit will not respond to external input when in settings menu.
	Wiring connection are incorrect	<ul style="list-style-type: none"> • Check and confirm wiring on unit with wire diagram
The fans does not start	No power to fans	<ul style="list-style-type: none"> • Check that the ERV is plugged in. • Check that the power switch on the ERV is ON • If wired to an external control, verify wire connections inside ERV and at control. • Connect the two yellow wires in the ERV. If the fans turn on, the problem resides with the external control.
	Thermal fuse is melted	<ul style="list-style-type: none"> • Contact Customer Support
The fans are running, but air output is low	The filters, fans or heat recovery core are clogged	<ul style="list-style-type: none"> • Clean or replace the extract filters • Clean the fans and the heat recovery core
	The ventilation system is clogged or damaged	<ul style="list-style-type: none"> • Check the diffusers and louvre gravity shutter opening. • Check the exhaust hood and intake grille and clean those if required. • Check the air ducts are not clogged or damaged
Noise or Vibration	The impeller(s) is (are) clogged	<ul style="list-style-type: none"> • Clean the fan impeller(s).
	Fan screw is loose	<ul style="list-style-type: none"> • Check and retighten the screws if required.