

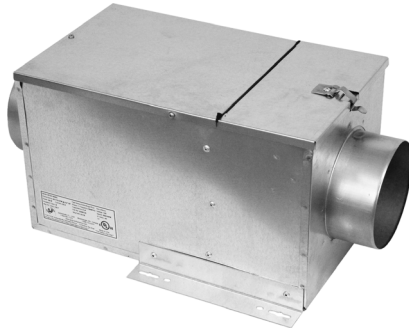


ADVANCING
VENTILATION®

reFRESH

FILTERED • FRESH • AIR

Installation, Operation and Maintenance Manual



ENERGY STAR® recognizes S&P's
RF8-120EC, RF8-120EC-ES24V,
RF10-160EC, RF10-160EC-ES24V,
RF10-160EC-P & RF10-160EC-P-ES24V

READ AND SAVE THESE INSTRUCTIONS

The purpose of this manual is to aid in the proper installation and operation of fans manufactured by S&P USA. These instructions are intended to supplement good general practices and are not intended to cover detailed instruction procedures, because of the wide variety and types of fans manufactured by S&P USA.



Installation Instructions

reFresh Series

1. WARNINGS

READ AND SAVE THESE INSTRUCTIONS. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE!

CAUTION:

- (1) For General Ventilating Use Only. Do Not Use To Exhaust Hazardous Or Explosive Materials And Vapors.
- (2) Units shall not be installed less than 30.5 cm (12 inches) apart.
- (3) The reRefresh series of fans are suitable for operation within indoor environments only.

WARNING: TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY, OBSERVE THE FOLLOWING:

- (1) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
- (2) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
- (3) Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
- (4) Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent back drafting. Follow the heating equipment manufacturer's guideline and safety standards such as those published by the National Fire Protection Association (NFPA), and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and the local code authorities.
- (5) When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
- (6) Ducted fans must always be vented to the outdoors.
- (7) If this unit is to be installed over a tub or shower, it must be marked as appropriate for the application and be connected to a GFCI (Ground Fault Circuit Interrupter) – protected branch circuit.
- (8) NEVER place a switch where it can be reached from a tub or shower.
- (9) To avoid motor bearing damage and noisy and/or unbalanced impellers, keep drywall spray, construction dust, etc. off power unit.
- (10) Not for Use in Kitchens.

“-P” models: These units evaluated for use in other spaces for environmental air per National Electrical Code Article 300.22 (c)(2).

2. PRE-INSTALLATION INSPECTION

The reRefresh range of in-line duct fans has been manufactured in accordance with rigorous standards of production. All the components have been checked and tested at the end of the manufacturing process. We recommend that you check the following after receiving this product:

- (1) The correct size has been received.
- (2) The correct model has been received.
- (3) The details on the rating label correspond to the electrical supply: voltage, frequency etc.

Remove the unit from packaging and inspect for shipping damage within 15 days of receipt. If the product is found to be damaged, immediately contact your local authorized supplier. **DO NOT OPERATE THE UNIT IF DAMAGED.** These instructions should be considered as a supplement to EPA standard practices, as well as all state and local building code regulations.

Before installing the product check the following points:

- (1) The fan impeller turns freely.
- (2) There are no obstructions to the airflow.

3. ENVIRONMENT

The reRefresh series of fans are suitable for operation within indoor environments only. The reRefresh units are suitable for the supply of both conditioned and un-conditioned airstreams within the temperature ranges (inclusive of duct airstream's temperature) of -40°C up to +40°C.

4. MOUNTING

Choose a mounting location which allows maintenance accessibility and ensure the fan is oriented so that air flows in the correct direction. The reFresh series can be mounted in any orientation, horizontal or vertical, and is suitable for supply/fresh air applications. All models include 2 robust mounting brackets which enable easy and quick installation of the fan.

(1) Surface Mounting (Figure 1 - Surface Mounting)

Locate the fan so that at least 1 of the 2 mounting brackets is centered on a stud or joist and mark the location of the 4 holes. Install properly sized wall/ceiling anchors in the holes that are not aligned with the stud/joist. Install the fan with properly sized screws (not included).

(2) Joist Mounting (Figure 2 - Joist Mounting)

Install quantity 2, 2 x 4 headers (not included) between the joists. Locate the fan so that the mounting brackets are centered on the headers and secure with properly sized screws (not included).

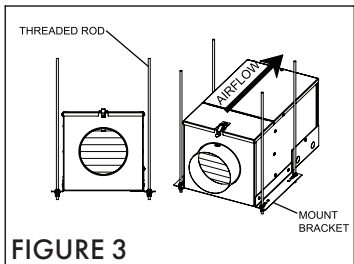
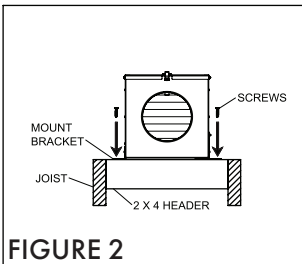
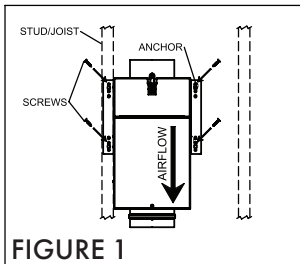
(3) Hanger Bar Mounting (Figure 3 - Hanger Bar Mounting)

Install quantity 4, 3/8 diameter threaded rod and locate so that the fan mounting brackets will align. Slide the threaded rods through the mounting bracket holes and install properly sized hardware (threaded rod and mounting hardware not included).

5. DUCTING

All ducting and fresh air intake construction/location must comply with local and national building codes. Do not locate fresh air intakes near contaminant sources (ex: dryer exhaust vent, garbage, etc). A minimum of 1 ft. of duct is required between the fan intake and the wall/roof cap.

S&P recommends round 6" insulated rigid ductwork for best air and sound performance. Round 6" flexible ductwork is acceptable, but ensure that it is pulled tight to reduce losses. Keep the length of duct and number of elbows to a



minimum for best air and sound performance. Insulated ductwork will minimize building heat loss/gain and reduce the potential for condensation.

The ducting from this fan to the outside of the building has a strong effect on the air flow, noise and energy use of the fan. Use the shortest, straightest duct routing possible for best performance, and avoid installing the fan with smaller ducts than recommended. Insulation around the ducts can reduce energy loss and inhibit mold growth. Fans installed with existing ducts may not achieve their rated air flow.

Ductwork connections and penetrations should be sealed with duct tape, duct fast-clamps, or caulk (available through your local distributor) to create an air-tight path from the building exterior to the ventilated space.

Connect the ductwork to the fan duct collars with screws, cable ties, worm clamps, and rated tape as necessary. Ensure that the inlet ductwork is properly connected to a properly sized, low restriction fresh air intake with weather hood and insect screen.

Ensure that the Test Port hole on the inlet duct collar is accessible for balancing as necessary. Remove the Test Port plug and insert a pitot tube (not included) to measure airflow or duct pressure and balance as necessary.

6. WIRING

CAUTION: Ensure that power is turned off and locked out before making any wiring connections.

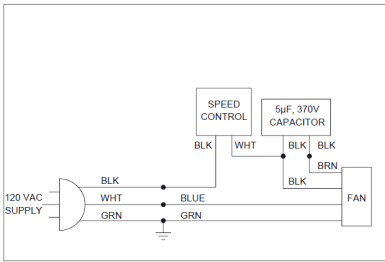
All reFresh series fans operate from a standard 120V 60Hz AC electrical supply. All wiring must be carried out by a

qualified electrician in accordance with National Electrical Code and all applicable state and local buildings codes. Electrical connections should be made in accordance with the following figures: 4-11.

All refresh fan models are provided with a factory-wired 6' power cord and ready to be plugged into a standard 120V receptacle. *Exception: Refresh fan models with "-P" do not have a power cord and are intended to be permanently connected (hard wired) to a standard 120V power supply. Refresh fan models with "-ES24V" include a factory mounted/wired 24V fan control, S&P USA model ES24V.*

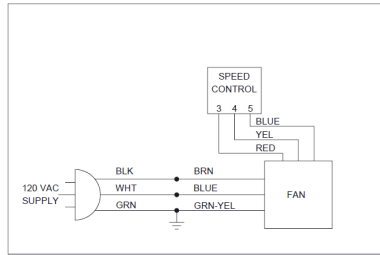
Models: RF8-120AC, RF8-120EC, RF10-160AC, RF10-160EC

RF8-120AC, RF8-120EC, RF10-160AC, RF10-160EC models are provided without a factory-wired ES24V control or relay and intended to be plugged in and run continuously. They can be field-wired to a control or relay to run intermittently as necessary, see additional wiring diagrams below. Plug the power cord into a standard 120V receptacle. The fan will not energize until the speed control in the filter compartment is turned on.



**RF8-120AC
RF10-160AC**

FIGURE 4A



**RF8-120EC
RF10-160EC**

FIGURE 4B

Models: RF8-120AC-ES24V, RF8-120EC-ES24V, & RFV8-120AC-ES24V

The RF8-120AC/EC-ES24V and RFV8-120AC-ES24V models are provided with a factory-wired ES24V control or relay and intended to be plugged in and run continuously or intermittently (depending upon user ES24V control settings).

There is no need to remove the junction box cover as the power cord and relay wiring connections have been made at the factory. **CAUTION:** If the junction box cover is removed for service, note that there are both 120V high voltage and 24V low voltage connections within, separated by a "relay separator". Remove the junction box screw and cover to gain access to the wire connections.

Connect the ES24V to a standard class II power supply. Refer to the ES24V – Envirosense Ventilation Control IOM for ES24V wiring connections and operation.

Plug the power cord into a standard 120V receptacle. The fan will not energize until the speed control in the filter compartment is turned on and the ES24V is activated.

Models: RF10-160AC-ES24V, RF10-160EC-ES24V

The RF10-160AC-ES24V and RF10-160EC-ES24V models are provided with a factory-wired ES24V control and relay and intended to be plugged in and run either continuously or intermittently (depending on ES24V control settings).

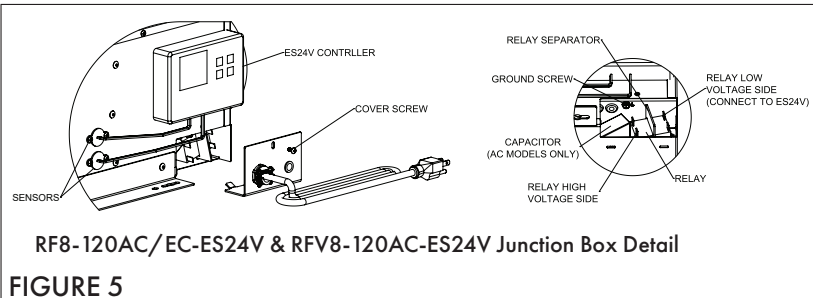
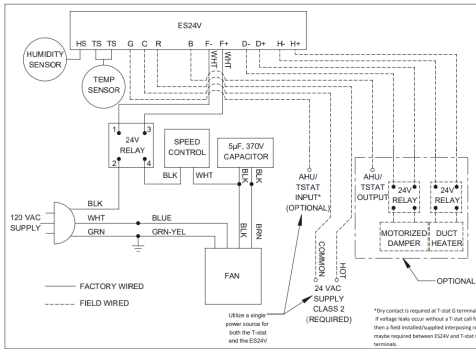
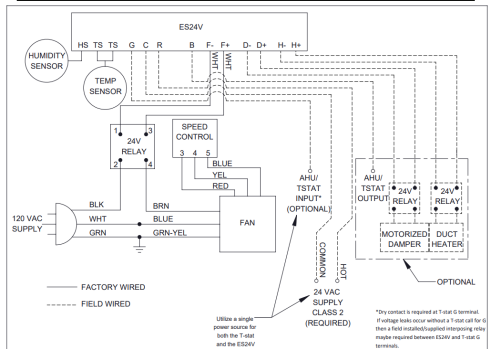


FIGURE 5



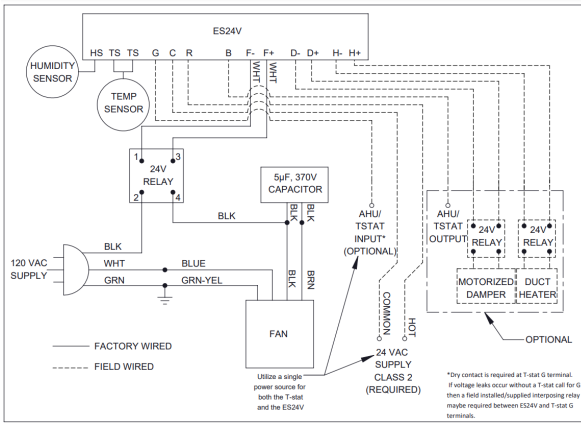
RF8-120AC-ES24V



RF8-120EC-ES24V

FIGURE 6A

FIGURE 6B



RFV8-120AC-ES24V

FIGURE 6C

CAUTION: If the junction box cover is removed for service, note that there are both 120V high voltage and 24V low voltage connections within, separated by a “relay separator”. Remove the junction box screw and cover to gain access to the wire connections. The power cord and relay wiring connections have been made at the factory. The ES24V wiring connections are field wired at the terminal block. Connect the ES24V to a standard class II power supply at the terminal block. Refer to the ES24V – Environsense Ventilation Control IOM for ES24V wiring connections and operation (located at the bottom of this document).

Re-install the junction box cover and screw once all ES24V connections are made. Plug the power cord into a standard 120V receptacle. The fan will not energize until the speed control in the filter compartment is turned on and the ES24V is activated.

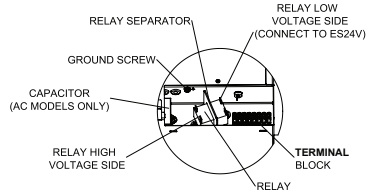
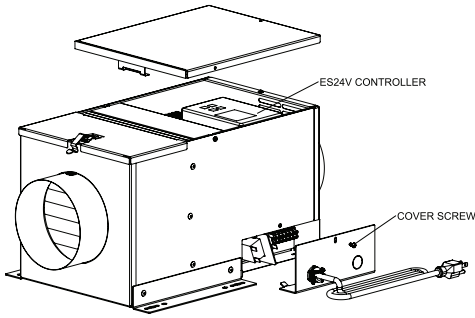
Models: RF10-160AC-P & RF10-160EC-P

The RF10-160AC/EC-P models are provided without a factory-wired ES24V control or relay and intended to be permanently connected (hard wired) to run continuously. They can be field-wired to a control or relay to run intermittently as necessary, see additional wiring diagrams below.

Connect the fan to a standard 120V power supply (refer to **Figures 9A & 9B**). The fan will not energize until the speed control in the filter compartment is turned on.

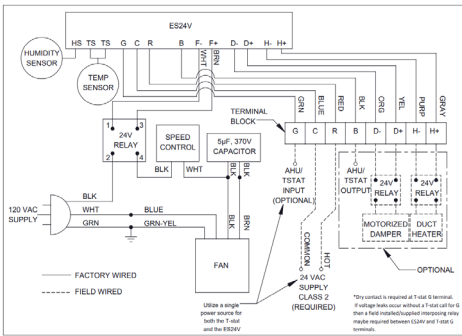
Models: RF10-160AC-P-ES24V & RF10-160EC-P-ES24V

The RF10-160AC/EC-P-ES24V models are provided with a factory-wired ES24V control and relay and intended to be permanently connected (hard wired) to run either continuously or intermittently (depending on ES24V control settings).

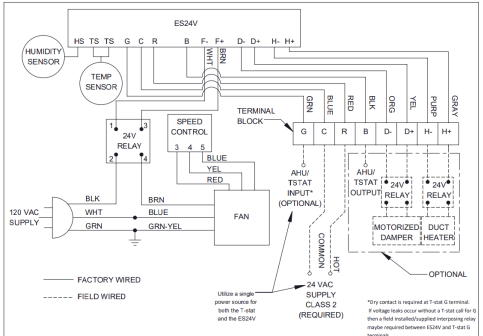


RF10-160AC/EC-ES24V Junction Box Detail

FIGURE 7



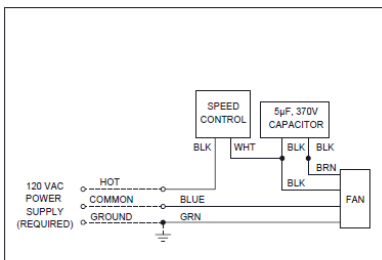
RF10-160AC-ES24V



RF10-160EC-ES24V

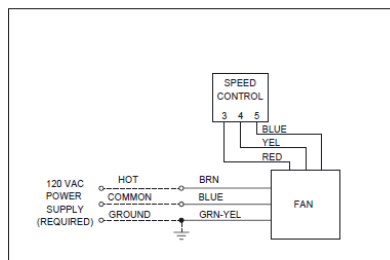
FIGURE 8A

FIGURE 8B



RF10-160AC-P

FIGURE 9A



RF10-160EC-P

FIGURE 9B

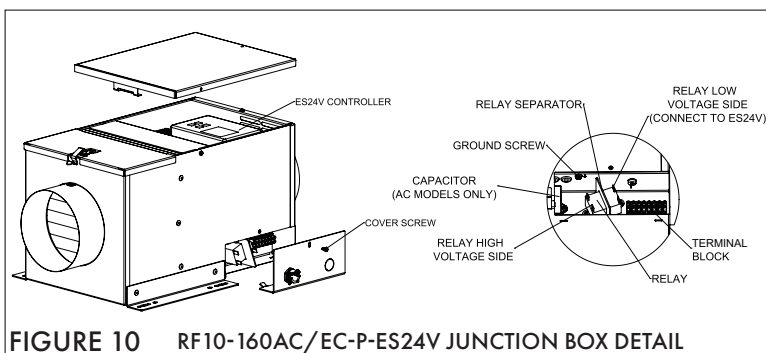
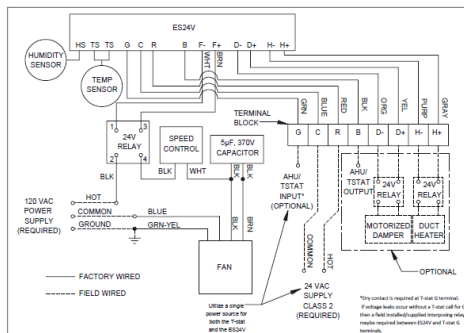
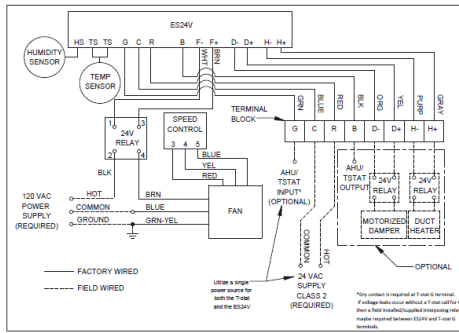


FIGURE 10 RF10-160AC/EC-P-ES24V JUNCTION BOX DETAIL



RF10-160AC-P-ES24V



RF10-160EC-P-ES24V

FIGURE 11A

FIGURE 11B

CAUTION: If the junction box cover is removed for service, note that there are both 120V high voltage and 24V low voltage connections within, separated by a “relay separator”. Remove the junction box screw and cover to gain access to the wire connections. The relay wiring connections have been made at the factory. Connect the fan to a standard 120V power supply. Connect the ES24V to a standard class II power supply at the terminal block (refer to Figures 10 & 11).

Refer to the ES24V – EnviroSense Ventilation Control IOM for ES24V wiring connections and operation (included at the bottom of this IOM for convenience). Re-install the junction box cover and screw once all fan power supply and ES24V connections are made. The fan will not energize until the speed control in the filter compartment is turned on and the ES24V is activated.

7. AIRFLOW SETTING (RF8 and RF10 Models Only)

CAUTION: Refer to local and national Ventilation and Indoor Air Quality standards to ensure the proper airflow rate is selected.

Open the air filter compartment by pulling up on the filter compartment latch and lifting the filter compartment lid up and out. The lid is hinged so that it will not detach from the fan. Set the speed control indicator to the desired speed based on the necessary airflow (refer to figures: 12-16). Install an air filter (sold separately) if necessary (see Section 8 for details). Replace the air filter compartment lid and close the latch.

Figure 12-RF8-120AC/-ES24V Airflow Table

Speed Setting	Filter	Nom. RPM	Watts	Efficacy (CFM/W)	CFM @ Static Pressure (in wg)													
					0	0.1	0.15	0.2	0.25	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2
LS	No	1480	37.3	1.2	79	57	48	40	34	29	21	-	-	-	-	-	-	-
	MERV 13	1510	37.4	1.0	52	39	34	30	26	22	16	-	-	-	-	-	-	-
MS	No	2040	55.9	1.6	126	107	99	90	83	75	63	53	46	39	31	22	11	-
	MERV 13	2090	56.3	1.4	92	81	76	70	64	59	51	45	39	33	26	19	12	-
HS	No	2500	74.1	1.9	167	154	147	140	133	126	113	100	88	78	71	63	55	40
	MERV 13	2530	73.3	1.6	129	119	115	110	106	101	92	81	73	67	61	55	49	34

HVI Certified Ratings @ 0.2" SP shown in bold. All other ratings are not HVI Certified.

Figure 13-RF8-120EC/-ES24V Airflow Table

Speed Setting	Filter	Nom. RPM	Watts	Efficacy (CFM/W)	CFM @ Static Pressure (in wg)									
					0	0.1	0.15	0.2	0.25	0.3	0.4	0.5	0.6	0.7
LS	No	1300	7.2	6.6	85	63	51	40	28	-	-	-	-	-
	MERV 13	1300	6.9	5.3	42	31	25	20	14	-	-	-	-	-
MS	No	1670	14.4	6.3	129	110	100	90	78	67	46	18	-	-
	MERV 13	1670	13.9	5.0	88	76	68	60	53	47	32	11	-	-
HS	No	2100	27.6	4.9	159	145	137	130	122	115	97	77	61	44
	MERV 13	2100	26.7	4.0	123	112	106	100	93	86	72	61	49	33



HVI Certified Ratings @ 0.2" SP shown in bold. All other ratings are not HVI Certified.

Figure 14-RF10-160AC/-P/-ES24V Airflow Table

Speed Setting	Filter	Nom. RPM	Watts	Efficacy (CFM/W)	CFM @ Static Pressure (in wg)													
					0	0.1	0.15	0.2	0.25	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2
LS	No	1484	40.4	1.7	84	66	58	50	41	33	18	10	-	-	-	-	-	-
	MERV 13	1581	40.8	1.4	62	50	45	40	35	28	16	7	-	-	-	-	-	-
MS	No	1864	53.7	2.1	140	121	110	100	91	84	68	52	34	21	11	8	6	-
	MERV 13	1895	53.6	1.7	118	103	97	90	84	78	67	52	33	23	16	12	8	-
HS	No	2549	72.2	2.6	214	196	188	180	172	164	149	135	122	107	90	75	61	30
	MERV 13	2510	72.7	2.0	174	162	156	150	144	139	128	116	104	92	81	68	51	22

HVI Certified Ratings @ 0.2" SP shown in bold. All other ratings are not HVI Certified.

Figure 15-RF10-160EC/-P/-ES24V Airflow Table

Speed Setting	Filter	Nom. RPM	Watts	Efficacy (CFM/W)	CFM @ Static Pressure (in wg)										
					0	0.1	0.15	0.2	0.25	0.3	0.4	0.5	0.6	0.7	0.8
LS	No	1340	7.5	7.1	84	65	53	40	27	-	-	-	-	-	
	MERV 13	1340	7.2	5.6	68	52	42	30	19	-	-	-	-	-	
MS	No	1730	15.6	6.9	139	120	110	100	91	78	52	17	-	-	
	MERV 13	1730	15.6	5.8	126	108	99	90	78	68	46	13	-	-	
HS	No	2300	34.0	5.1	201	185	177	170	163	155	139	121	103	86	66
	MERV 13	2300	35.5	4.2	176	162	156	150	143	136	121	105	90	72	48

HVI Certified Ratings @ 0.2" SP shown in bold. All other ratings are not HVI Certified.

Figure 16-RFV8-120AC-ES24V Airflow Table

Model	Speed (RPM)	CFM @ Static Pressure (inches w.g.)								Amps @ .2" SP	Watts @ .2" SP
		0	0.1	0.15	0.2	0.25	0.3	0.4	0.5		
RFV8-120AC-ES24V	2560	179	161	153	145	138	131	116	101	0.62	76.5

RFV8 is not HVI Certified.

All reFresh series fans are provided with a factory-wired speed control. The speed control settings are model dependent and noted below. (excluding value series)

8. AIR FILTER (OPTIONAL RF8 and RF10 Models Only)

If desired, an air filter (sold separately) can be installed in the air filter slot of the fan to filter the fresh air supply. **CAUTION:** Installing an air filter will reduce fan airflow performance. Refer to **Section 7** to ensure the proper airflow is achieved.

Air filter replacement intervals will depend on factors such as fan run time and outdoor air quality. Follow common HVAC filter replacement guidelines for best results. The filter should be inspected once a month and replaced once every 3 months as a general rule of thumb.

The RF8 models accept an 8" x 8" x 2" filter (nominal). The RF10 models accept a 10" x 10" x 2" filter (nominal).

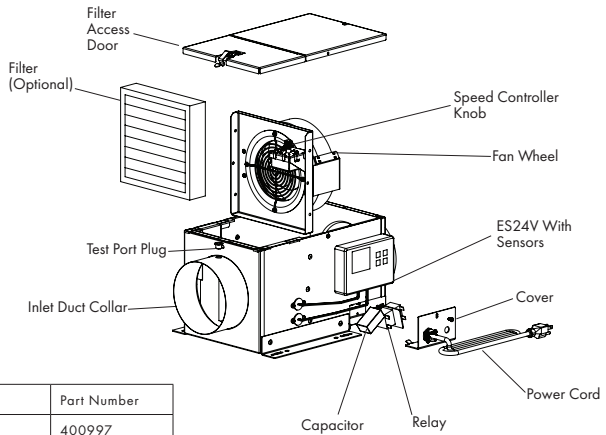
Open the air filter compartment by pulling up on the filter compartment latch and lifting the filter compartment lid up and out. The lid is hinged so that it will not detach from the fan. Install the air filter by locating it in the air filter slot and pressing down until it is seated firmly against the fan floor. Ensure it is oriented properly based on the airflow direction of the fan. Replace the air filter compartment lid and close the latch.

9. MAINTENANCE

CAUTION: BEFORE CARRYING OUT ANY MAINTENANCE OR SERVICING, ENSURE THE UNIT IS DISCONNECTED FROM THE MAIN ELECTRICAL SUPPLY.

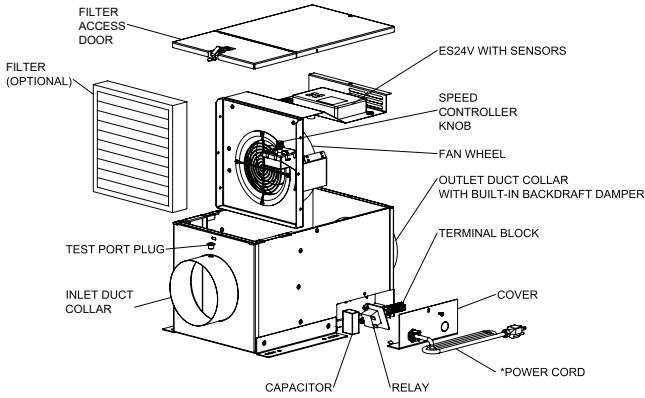
All reFresh series fans incorporate sealed for life bearings and therefore do not require any lubrication. S&P recommends inspection of the fan at least once every twelve (12) months to avoid excessive accumulation of dust and dirt on the impeller. Refer to **Section 8** for air filter maintenance. To inspect the unit disconnect from electrical supply. Remove 3 screws (RFV8: 4 screws) from motor compartment lid and pull up. If any debris is evident on the impeller clean with a damp (not wet) cloth. **DO NOT USE** any detergents or abrasive materials for cleaning. Reinstall motor compartment lid and 3 screws.

10. EXPLODED VIEW



No.	Description	Part Number
1	Duct Test Port Plug	400997
2	RF AC Speed Control Knob	RFACSKNOB
3	RF EC Speed Control Knob	2521POTKNOB
4	General Purpose SJT Power Cord - 6 ft.	166006
5	Capacitor 5 UFD @ 370 Volt	605414
6	Envirosense Ventilation Control - 24V	ES24V
7	Relay 24VAC 12FLA 60LRA 125VAC	R24V

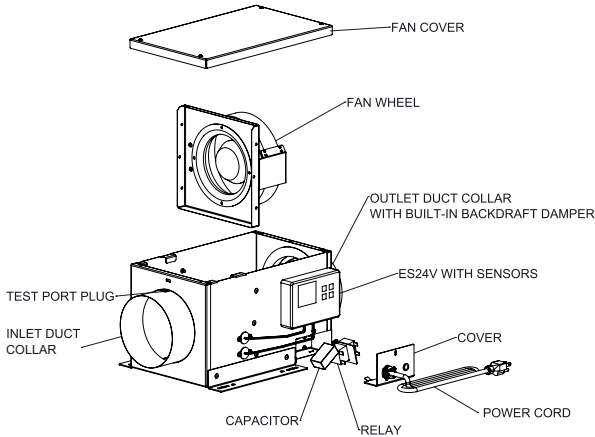
FIGURE 17 RF8-120AC/EC



NO.	DESCRIPTION	PART NUMBER
1	DUCT TEST PORT PLUG	400997
2	RF AC SPEED CONTROL KNOB	RFACSCKNOB
3	RF EC SPEED CONTROL KNOB	2521POTKNOB
4	GENERAL PURPOSE SJT POWER CORD -6FT	166006
5	CAPACITOR 5 UFD @ 370 VOLT	605414
6	ENVIROSENSE VENTILATION CONTROL - 24V	ES24V
7	RELAY 24VAC 12FLA 60LRA 125VAC	R24V

* Power cord not included with "P" models.

FIGURE 18 RF10-160AC/EC



NO.	DESCRIPTION	PART NUMBER
1	DUCT TEST PORT PLUG	400997
2	GENERAL PURPOSE SJT POWER CORD -6FT	166006
3	CAPACITOR 5 UFD @ 370 VOLT	605414
4	ENVIROSENSE VENTILATION CONTROL - 24V	ES24V
5	RELAY 24VAC 12FLA 60LRA 125VAC	R24V

FIGURE 19 RFV8-120AC-ES24V

11. WARRANTY

S&P USA - S&P Canada warrant that the reFresh series fan will be free from defective materials and workmanship for the period of (5) years from the date of original purchase. In the event that we find any part is defective the product will be repaired or, in the Company's discretion, replaced without charge provided that the product has been installed in accordance with the enclosed instructions and all applicable EPA Standards and state and local building codes.

IF CLAIMING UNDER WARRANTY: Please return the complete product, freight paid, to your local authorized distributor. All returns must be accompanied by a valid Bill Of Sale. All returns must be clearly marked "Warranty Claim," with an accompanying description stating the nature of the fault.

THE FOLLOWING WARRANTIES DO NOT APPLY: Damages from shipping, either concealed or visible. Claim must be filed with the carrier. Damages resulting from improper wiring or installation, damages caused by acts of nature, or resulting from improper consumer procedures such as: Improper Maintenance; Misuse; Negligence; Alteration; Abuse; Abnormal Use; or Accident or Incorrect Electrical Voltage and Current. Removal or alteration to the S&P USA - S&P Canada data plate label.

WARRANTY VALIDATION: The end user must keep a copy of the Bill of Sale to verify purchase date.

THE ABOVE (5) YEAR WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, WRITTEN OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE. IN NO EVENT SHALL SOLER & PALAU USA - SOLER & PALAU CANADA BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING LOSS OF PROPERTY, REVENUES, LOST PROFITS, COSTS OF REMOVAL, INSTALLATION OR REINSTALLATION.



S&P USA Ventilation Systems, LLC
6393 Powers Ave
Jacksonville, FL 32217
ES24V

EnviroSense Ventilation Controller

The ES24V controls a ventilator to meet fresh air supply requirements while limiting operation during periods of extreme temperature and/or humidity.

INSTALLATION & OPERATION MANUAL

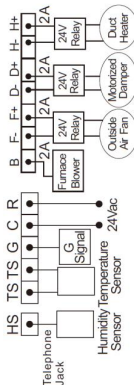
CAUTION:

1. READ AND SAVE THESE INSTRUCTIONS.
2. Before installation or maintenance, disconnect the power supply.
3. This control is for 24 VAC applications only.
4. All wiring must be done by qualified person(s) in accordance with all applicable codes & standards.
5. Indoor Use Only

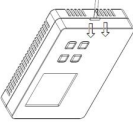
WIRING

Use Copper Conductors Only

Terminal	Type	Description
R	24Vdc	Input: 24Vdc Input (50/60 Hz)
G	24Vdc	Input: 24Vdc common
C	24Vdc	Input: Furnace Blower (Optional)
B	24Vdc	Output: Furnace Blower (2A max) (Optional)
F+	24Vdc	Output: Fresh Air Fan output + (2A max)
F-	24Vdc	Output: Fresh Air Fan output - (2A max)
D+	24Vdc	Output: Motorized Damper + (2A max) (Optional)
D-	24Vdc	Output: Motorized Damper - (2A max) (Optional)
H+	24Vdc	Output: Duct Heater output + (2A max) (Optional)
H-	24Vdc	Output: Duct Heater output - (2A max) (Optional)



MOUNTING



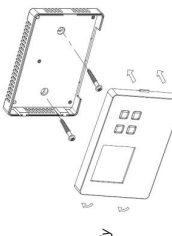
Front Cover Removal
 Insert a flathead screwdriver into the slot on the right side of the controller and use a gentle pressure to pry up the back cover. Pull the front cover up and to the left.

Back Cover Mounting

Locate the control on the mounting surface being sure to allow clearance for the necessary wiring connections. Mark the mounting hole locations and remove the back cover from the work space. Make the stripped/labelled wiring connections now. **CAUTION: Be sure that no exposed portions of wires are touching.**

If installing onto wood, mount the back cover with the provided screws. If installing onto drywall, drill pilot holes using a #32" drill bit (not provided) and tap the provided drywall anchors into place. Mount with provided screws. **NOTE: Velcro can be used to mount the control instead of screws if necessary.**

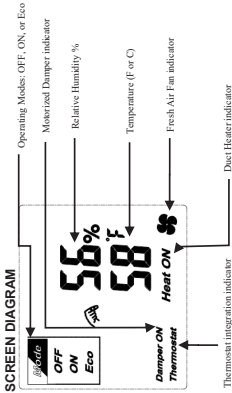
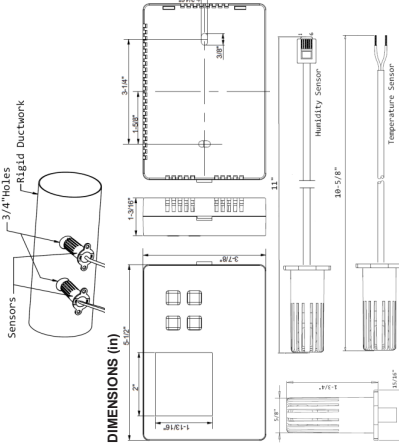
Verify that wiring connections are correct and secure.



Align the front cover with the back cover starting on the left side. Push the front cover in a downward direction until the wiring connections are left to the right. **CAUTION: Make sure the front cover is aligned properly with the back cover to avoid damaging the control.** Press down until the front cover snaps securely into place.

Sensor Mounting

The ES24V comes with a temperature sensor (26AWG, 2 wire) and humidity sensor (6P6C, telephone wire), both 10" long. Install the sensors at a location so that they will be exposed to the fresh air intake (ex: the fresh air ductwork). Drill 2, 3/4" diameter holes, spaced appropriately and install the sensors with the provided hardware. **NOTE: the sensor wires can be extended up to 300 feet without deviation.** Use appropriate duct tape to seal joints/openings as necessary.



OPERATING MODES

OFF Mode: All outputs are off.

ON Mode: The Fresh Air Fan, Motorized Damper (if enabled), and Furnace Blower (if enabled) are on continuously. The Duct Heater will follow the user settings (see FUNCTION SETTINGS below).

Eco Mode: Eco Mode limits the Fresh Air Fan operation during periods of extreme temperature and/or humidity. The Fresh Air Fan, Motorized Damper (when enabled), Furnace Blower (when enabled), and Duct Heater (when enabled) will follow the user settings when the extreme temperature/humidity is within the user set limits (see FUNCTION SETTINGS below).

The Fresh Air Fan will run for the user set amount of time/hour while the temperature/humidity limits are within range. The temperature/humidity sensors evaluate the fresh air conditions every 10 seconds. While the fresh air temperature/humidity is within the user set limits, the Fresh Air Fan/accessories will run per the user settings. When the Fresh Air temperature/humidity exceeds the user set limits, the Fresh Air Fan/accessories will turn off and engage a timer. The timer will run the fan for 5 minutes every 15 minutes in order to meet code requirements. **NOTE: the Furnace Blower (if enabled) will not run during this check procedure to prevent cycling.** The fan will continue this check procedure until the temperature/humidity limits are within the user set limits.

If Enabled (in SETUP):

The Furnace Blower will be on: any time there is a call from "G" input or any time the Fresh Air Fan is on (excluding the check procedure above).

The Motorized Damper will be on anytime the Fresh Air Fan is on. The Duct Heater will be on any time the Fresh Air Fan is on and the set point > room temperature + 2 F. **(Motorized Damper, Furnace Blower, and Duct Heater are required to be enabled in SETUP)**

BUTTONS

Keys	Description
Mode	Select the operating mode
Set	Confirm settings
▲	Increase settings
▼	Decrease settings

SETUP

Press and hold [MODE] for 3 seconds to enter setup mode.



01 Optional Duct Heater (Default: heater disabled)
Press [▲]/[▼] to enable or disable duct heater.
Press [SET] to confirm settings.



02 Temperature Unit (Default: degrees F)
Press [▲]/[▼] to select degrees C or degrees F.
Press [SET] to confirm settings.



03 Humidity/Temperature (Default: temperature and humidity)
Press [▲]/[▼] to evaluate temperature only, humidity only or both temperature and humidity.
Press [SET] to confirm settings.



04 Optional Motorized Damper (Default: motorized damper disabled)
Press [▲]/[▼] to enable or disable motorized damper.
Press [SET] to confirm settings.



05 Optional Thermostat Integration (Default: standalone system)
Press [▲]/[▼] to enable or disable thermostat integration.
Press [SET] to confirm settings.



06 Fan Run Time per Hour (Default: 15 minutes)
Press [▲]/[▼] to adjust 5-60 Minutes/Hour (increments of 5).
Press [SET] to confirm settings and return to normal mode.

All setting screens will return to the normal mode screen automatically after 20 seconds.

FUNCTION SETTINGS

Press <Set> key to set the temperature/humidity limits and duct heater set point.



Press [▲]/[▼] to change the high limit temperature setting.
Press [SET] to confirm settings.



Press [▲]/[▼] to change the high limit humidity setting.
Press [SET] to confirm settings.



Press [▲]/[▼] to change the low limit temperature setting.
Press [SET] to confirm settings.



Press [▲]/[▼] to change the low limit humidity setting.
Press [SET] to confirm settings.



Press [▲]/[▼] to change the duct heater activation temperature setting.
Press [SET] to confirm settings and return to normal mode.

FACTORY RESET

Press and hold [▲] [▲] [▼] buttons in OFF mode for ~5 seconds to reset the control to factory settings. ⚙️ will be displayed on the screen when complete.

FEATURES

- Voltage supply: 24VAC +/- 15% 50/60Hz
- System mode: Off/ On/ Eco
- Temperature unit mode: F or C
- Temperature measurement range: 15°F - 130°F (-10°C to 55°C)
- High Limit Temperature settings range: 65 -105°F (18°C to 40°C)
- Low Limit Temperature settings range: 20 - 60°F (-6°C to 16°C)
- Heater Temperature settings range: 32°F - 62°F (0°C - 16°C)
- Temperature resolution: 1°F or 0.5°C
- Temperature Accuracy: +/-1°F or 0.5°C
- Humidity measurement range: 10-95%
- High Limit Humidity settings range: 55-90%
- Low Limit Humidity settings range: 10-50%
- Humidity resolution: 1%
- Humidity Accuracy: +/- 5%
- 10 inch RJ11 (6 wires) phone cable for humidity sensor
- 10 inch 26AWG (2 wires) cable for temperature sensor
- Max Sensor Wire Length: 300 feet (100 m)
- Motorized Damper relay output (Maximum 2A)
- Fan relay output (Maximum 2A)
- Duct Heater relay output (Maximum 2A)
- Furnace Blower Output (Maximum 2A)
- Non-volatile memory to store settings, configuration parameters
- Operating temperature: 15°F to 130°F (-10°C to 55°C)
- Storage temperature: -20°F to 158°F (-29°C to 70°C)
- Temperature limit of mounting surface: 130°F (55°C)
- Terminals: 2.5mm² cable
- Pollution Degree: 2
- Degree of protection: IP20
- Electronic control: Type 2.B
- Class II Control
- cULus listed: UL60730-1
- Housing Material: Lexan 943(rf), 1.6mm thick, V-0 (UL94 Rating)
- Time Setting Range: 5-60 Minutes
- Power: 1.5W (Max)



**ADVANCING
VENTILATION®**

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