

INSTALLATION MANUAL
VentCool™ 1.7
WHOLE HOUSE FAN



ITEMS INCLUDED:

- Fan & Damper Assembly
- Cube-core Grille (incl. 4 powder-coated wood screws)
- Adhesive-backed Foam Gasket
- 6 Wood Screws
- Control package—including one hard-wired wall control, one wall mounting bracket, and 50 feet of red CAT5 cable

SUPPLIES NOT INCLUDED & REQUIRED TOOLS:

- Drywall Cutter
- Cordless screwdriver with Phillips head & miscellaneous drill bits
- High quality latex caulk
- Lumber matching dimensions of the attic joists (e.g. 2"x6", 2"x8", etc.) & cut to fit according to INSTALLATION: FRAMING section

Thank you for purchasing a VentCool™ Whole House Fan by Field Controls. Your fan has been designed to provide your home with natural, quiet, and energy-efficient cooling for many years.

Please take a few minutes to read over this manual and its accompanying documents to make sure you are prepared to install the fan. In particular:

- The homeowner/resident should read the WHERE TO LOCATE section so that the fan will be correctly located to maximize its effectiveness and efficiency.
- The ELECTRICAL REQUIREMENTS and VENTILATION REQUIREMENT sections are also particularly important, as they describe the electrical supply and attic ventilation required to operate the fan.

Before installing this fan, inspect it and all of its parts for any damage it may have sustained during shipping. DO NOT INSTALL DAMAGED EQUIPMENT. If you suspect this fan has been damaged during shipping, contact Field Controls technical support by phone at 1.800.742.8368, or email at fieldtec@fieldcontrols.com.

Whole House Fans are designed to be installed within a home's attic, which makes them and their sub-components extremely difficult to access once installed. **TEST THIS FAN OUTSIDE OF THE ATTIC BEFORE INSTALLING IT. Connect the fan to its controls and to a power supply, and ensure it operates properly by turning it on and cycling through its speed settings.** If any difficulties are encountered, contact Field Controls technical support at the number listed above.

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.

Installed By: _____ Phone: _____ Installation Date: _____



SAFETY CONSIDERATIONS



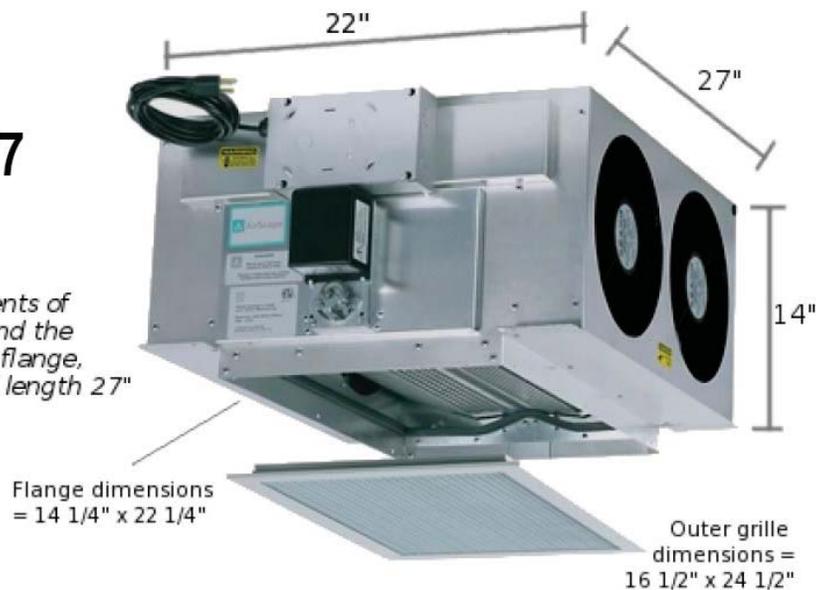
Some of the principles of this product's safe installation and operation are not immediately obvious. Read the following safety information before continuing further:

- Never operate this fan without a window or door opened.
- This fan is meant for general ventilation. **It has NOT been designed to ventilate particle laden and/or explosive mixtures of air.**
- **This fan is NOT for use in kitchens.**
- Never force open the damper doors, this could severely damage the actuators. Always use the yellow clutch releases located on the actuators before attempting to manually open or close the damper doors.
- Before installing or servicing this fan, switch power off at the home's electrical panel to reduce the risk of damaging circuit board, fire, electrical shock, or injury.
- Install this fan in accordance with this manual and all local codes and standards.
- There is a risk of injury from the fan blades, if people or animals are expected to be in close proximity to an operating fan. If this situation may occur, do not operate the fan without a fan guard. Contact Field Controls technical support for more information.

UNIT PARTS AND DIMENSIONS

VentCool 1.7

The electronic components of the 1.7 extend 2" beyond the length of the mounting flange, making the total overall length 27"



ELECTRICAL REQUIREMENTS

The VentCool 1.7™ model requires a 120 volts, 2 amp, uninterrupted power supply. These specifications must be taken into account when allocating power from existing circuits. We strongly recommend providing a dedicated circuit.

This fan has a factory-installed, 10 ft. power cord. Consider this length when choosing a location for this unit. Depending on the location of existing outlets in the attic, the installation of an additional outlet may be required. Consult an electrician if necessary.

All wiring and connections must be made according to this manual and acceptable wiring standards. All local codes must be followed.

VENTILATION REQUIREMENTS

It is critical that the attic be sufficiently ventilated for this fan to operate properly. Without adequate ventilation, hot air cannot easily escape from the attic, which creates back-pressure that can substantially reduce the fan’s performance. Venting requirements vary by fan. We recommend a minimum of 1 sq. ft. of “net free” ventilation area per 500 cfm at a fan’s highest speed. **Therefore, the VentCool 1.7™ Whole House Fan requires a minimum of 3.4 square feet of net free ventilation area for proper operation.**

Operating this fan in an attic with less net free ventilation area than recommended will decrease its airflow and energy efficiency. Net free ventilation area can be provided by any combination of gable, eyebrow, roof cap, soffit, or ridge vents, or any other method of ventilating the attic space.

The openings of most vents are partially obstructed by grilles, louvers, and/or screens. A vent’s “net free” ventilation area is then the surface area of its opening minus the surface area of any grilles, louvers, or screening covering it. Different types of vents have different ratios of net free area to total area. Manufacturers typically publish these ratios with their vents’ specifications, but if this information is not available to you, a ratio of 50% net free area to total area is usually a good rule of thumb. For example, according to this rule of thumb, a typical 24” x 24” louver with a gross area of 4 sq. ft. would have a net free area of 2 sq. ft. A notable exception to this rule are ridge vents. The industry standard net free ventilation area for ridge vents is 13% of the vent’s length in feet.

While in our experience most properly constructed homes have adequately ventilated attics, not all do. Because sufficient ventilation is so critical to this fan’s performance, it is important that the home’s existing ventilation be verified before it is installed. Since most attics have multiple vents, often of different types, it is necessary to count each vent, noting its type and size. Then, apply the appropriate ratio to each vent to find its net free area, and sum these values to find the attic’s total ventilation. An example of how these calculations are made is given in TABLE 1 below:

TABLE 1: Net Free Ventilation Calculation

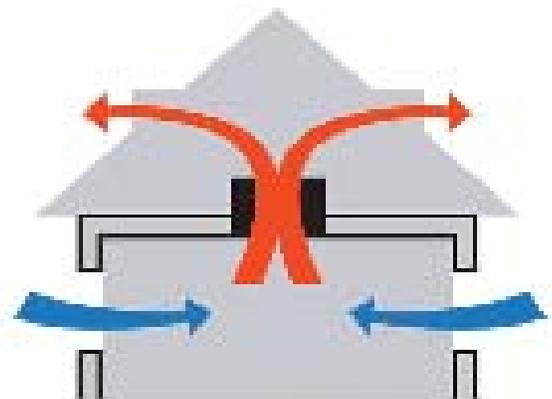
Vent Type	Dimensions	Total Area	Net Free Area Ratio (“NFA”)	Net Free Ventilation Area (Total Area x NFA)
Louver	24” x 24”	$24” \times 24” / 144 = 4 \text{ ft}^2$	50%	$4 \text{ ft}^2 \times 0.50 = 2 \text{ ft}^2$
Ridge	10 feet	n/a	13%	$10 \text{ feet} \times 0.13 = 1.33 \text{ ft}^2$
Round Soffit	10” diameter	$3.14 \times 5” \times 5” / 144 = .55 \text{ ft}^2$	50%	$0.55 \text{ ft}^2 \times 0.50 = 0.28 \text{ ft}^2$
Total Net Free Ventilation Area =				3.61 ft ²

Please consult a roofing professional if the attic’s net free ventilation area remains uncertain.

WHERE TO LOCATE THIS FAN

The best location for this fan is dictated by its theory of operation: As a home heats up during the day, a large amount of heat is retained in its structure and contents. These materials give up their heat slowly and, in doing so, continue to heat the home’s interior even though the outdoor temperature may, in fact, be very comfortable in the evening and at night. Thus, homeowners are forced to either endure the hot conditions inside of their homes or turn on their air conditioners and bear the expense thereof.

When operated properly, this whole house fan can resolve this dilemma by forcing the hot air inside a home out and drawing cool air from outside in. The illustration, to the right, depicts how this fan exhausts hot into the attic and draws cool air into the house from outdoors through open windows and/or doors.



By running this fan through the night, homeowners can extract the maximum possible amount of heat from their home's structure and contents. This essentially "pre-cools" the home ahead of the rise in temperature the next day, which reduces or can even eliminate the need for air conditioning. This VentCool Whole House Fan has been designed specifically for quiet and efficient operation. As such, we strongly recommend homeowners run this fan through the night to reduce their energy expense.

With the above theory of operation in mind, adhere to the following guidelines when choosing a location for this fan:

- Locate this fan in a central location, away from windows that will be opened during its operation. Installing this fan centrally promotes an even replacement of air throughout the home, and the longer the path of air travels from an open window to the fan, the greater the cooling effect.
- The damper provided with this fan can only be installed in a horizontal orientation, thereby requiring the unit to be installed in the ceiling.
- Locate this fan at the highest point possible. This exploits natural convection and helps the fan exhaust the hottest indoor air from the home.
- Typically, the ideal location for this fan in a two-story home is in the open area at the top of the stairs.
- Avoid locating this fan in a narrow space or over hard flooring as sound reflecting off of hard surfaces can amplify its perceived noise.
- Even though this fan is extremely quiet, we specifically recommend against installing it in a bedroom as humans' perception of noise is far greater when the surrounding environment is quiet (such as within a bedroom at night).
- Within the attic, locating the fan near an electrical outlet or power supply can minimize the need for additional electrical work.

INSTALLATION

The 1.7 unit has been designed to fit into a 14½" x 22½" wall or ceiling opening. Since most modern houses have been built with either 16" or 24" on-center (O.C.) spaced joists or studs, a simple "box" is constructed in the ceiling or wall.

In Figure 1 at right, two 24"x16"s (to match existing 24"x16" attic joists) have been cut 14½" long and nailed in place 24" O.C. apart to form the box shown. If your joists or trusses use 2x4, 2x6, 2x10, etc., use the appropriate depth pieces. For 24" O.C. joists, place the cross pieces 16" o.c. apart, creating a box with inside dimensions of 14½"x22½".

Use a stud finder to locate the joists or studs from the living space or drill pilot holes from the attic space to outline the grille opening in the drywall ceiling or wall. Cut the opening with a drywall cutter. The opening should be 14½" x 22½".

Place the included foam tape gasket over the top of the joists, position the fan on top of the joists, and attach the unit with the wood screws (included). Do not over tighten the screws, since this may reduce the vibration isolation qualities of the foam gasket.

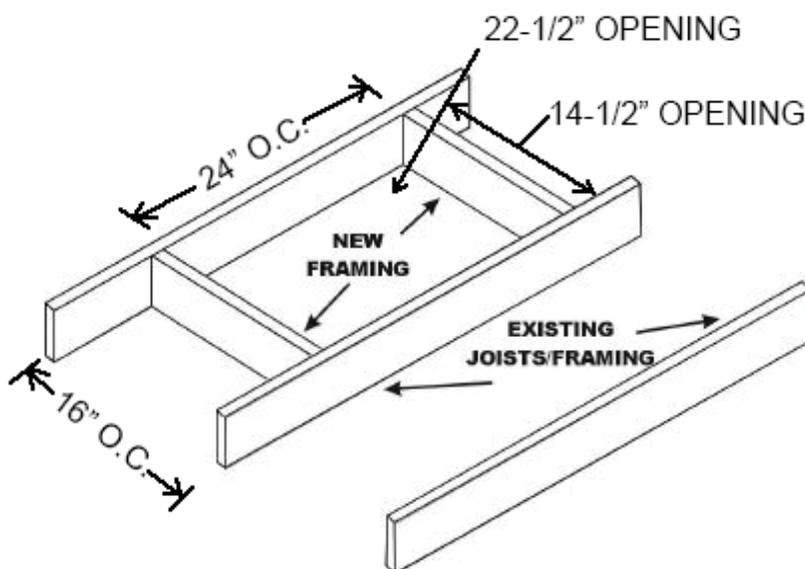


Figure 1: Box Opening for VentCool 1.7

Figure 2 below shows the 1.7 unit sitting on top of 24"x16" joists. The joists are 16" apart on-center and have a total distance between them of 14½".

If installing the unit vertically in a wall, frame a box with the same dimensions as above. However, use longer wood screws than those provided (at least 1½") to mount the fan to the framing, and make sure the damper door(s) open about their vertical axis. Also, consider bracing the underside of the unit with additional framing.

Use a good quality latex caulk to seal all wood-to-wood and wood-to-metal joints to create an air-tight enclosure. This is important to ensure that all air drawn in by the fan will be from inside the house.

Attach the interior grille to the joists with the included white-capped grille screws.

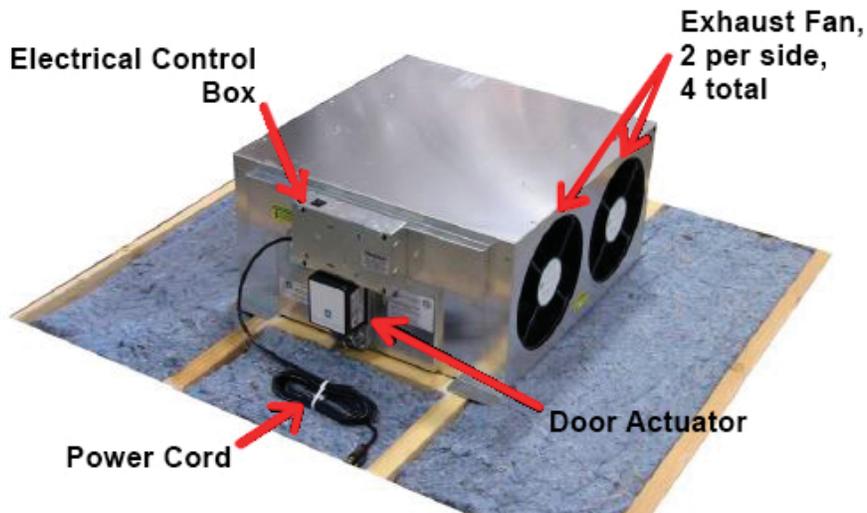


Figure 2: VentCool 1.7 on joists

INSTALLATION: WIRING & CONTROLS

The standard control package included with this fan contains: electrical control box mounted to the unit; 1 wall switch; 1 mounting bracket for the wired switch; and 50 ft. of red CAT5 cable.



Because a wall switch is necessary for providing technical support, the wall switch included with this fan **MUST** be connected to the fan's control box regardless of whether or not it will be installed in a wall. **FAILURE TO CONNECT THE WALL SWITCH WILL VOID THIS FAN'S WARRANTY!** If it is not desired to be installed in a wall, the switch can be connected to the control box and left in the attic with the CAT5 cable kept spooled.

The fan's control box is mounted to its side. Look for the electrical box with a series of 5 RJ45 ports labeled with the following label:

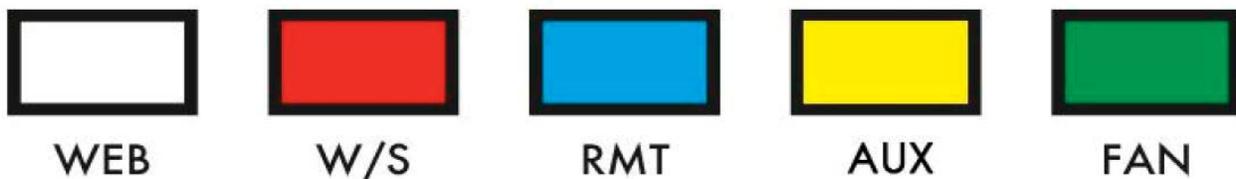


Figure 3: Electrical Control Box Port Labeling

The green FAN, white WEB and yellow AUX ports are not used by this fan.

Wall Switch Installation: Refer to Figure 2 for electrical control box location and Figure 3 for Electrical Control Box Port Labeling.

Connect the red CAT5 cable to the red W/S port located on the electrical control box on the ventcool 1.7 housing. Then, run the cable through the attic and down the wall to the desired location for the hardwired wall switch. Refer to Figure 4 for Wall Switch. **Note: This cable is low-voltage but unshielded. Building Codes require unshielded low-voltage wiring to be run through shielded conduit.**

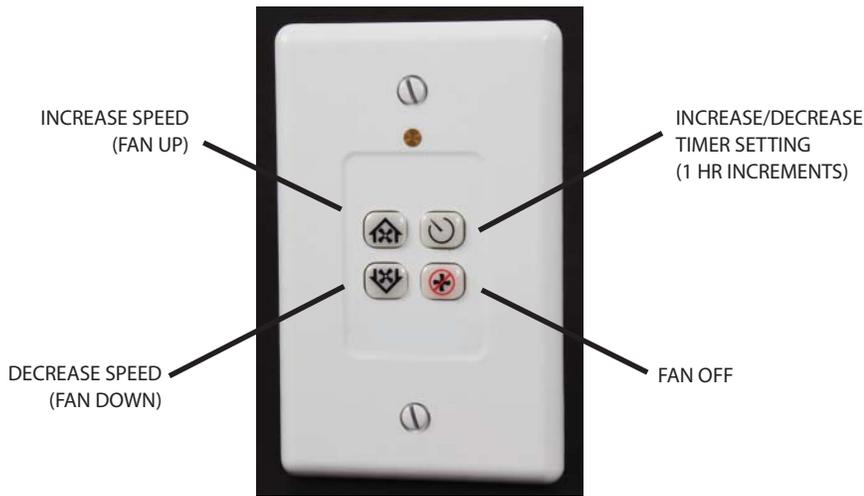


Figure 4: Wall Switch Front for VentCool 1.7



Figure 5: Wall Mounting Bracket

Using the provided wall mounting bracket (Figure 5) as a template, trace an outline on the wall where you would like the switch to be located. Following this outline, cut a hole for the mounting bracket, place it inside, and secure it with the locking tabs by tightening the silver screws. Then, connect the free end of the red CAT5 cable to the port on the back of the wall switch. Set the switch in place and secure its face plate to the mounting bracket using the attached white screws.

POWER CONNECTION

After unit and wall switch are installed, plug the attached power cord into a 120 Volt, 60 Hz, grounded outlet with uninterrupted power. For reference, Figure 6 shows the general wiring scheme of the VentCool 1.7 system including optional accessories.

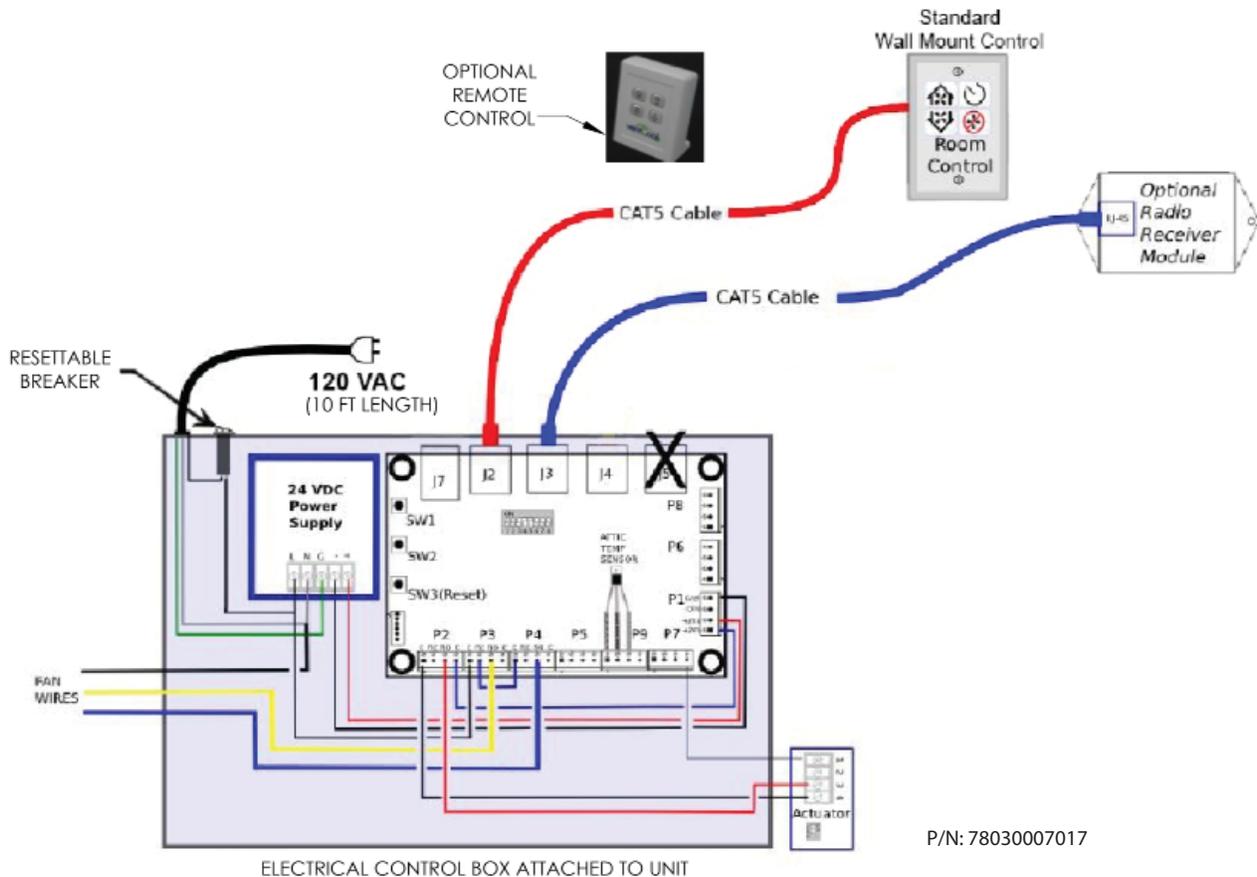


Figure 6: VentCool 1.7 Wiring Diagram

START-UP, OPERATION & TECHNICAL SUPPORT

Make sure that all wiring and connections have been made per this manual and acceptable wiring standards. Make sure that no tools or construction debris have been left on, inside, or around the Whole House Fan. Plug the power cord into a 120v grounded outlet. Verify main panel breaker supplying power to 120V outlet is energized.

Turn the unit ON using the arrow up button on the wall switch control. The damper doors will open and there will be a 10 second delay before the fans turn on. Once the fans start running in low speed, press the up button again to change to high speed to verify that the unit runs in both speeds. Allow for a slight delay when changing speeds for the fans to adjust speed. Use the arrow up and down buttons to change between speeds while the unit is running. The VentCool 1.7 model has 2 speed settings.

Always turn the fan on using the UP button. Use the up and down arrows to change between the speeds. Turn the unit on before pressing the timer button. Press the timer button 1 time for 1 hour, up to 12 times for 12 hour operation. You can vary speeds while the timer is programmed, but turning the unit off will cancel the remaining time on timer.

When the power is turned OFF, the fans will shut down and the damper door(s) begin to close. The door(s) will shut tightly within 60 seconds.

Please contact Field Controls technical support at 1.800.742.8368 or fieldtec@fieldcontrols.com with any questions regard the installation, operation, or maintenance of this fan.

WIRELESS REMOTE (OPTIONAL)

A wireless remote is an available accessory for this fan. It is not included as part of this fan's standard control package. Briefly, the steps for installing the remote are as follows:

- Plug the provided blue CAT5 cable into the remote receiver device and the blue RMT port on the fan's control box. Remove the top cover of the remote receiver.
- Press and release the black button on the receiver's circuit board to begin the merge sequence; the transmission LED on the receiver will illuminate.
- Press and release any button on the wireless transmitter while the transmission LED on the receiver is illuminated; replace the top cover on the receiver. Securely mount the remote receiver device/box in the attic space after signal merge sequence is completed.

SPECIFICATIONS*

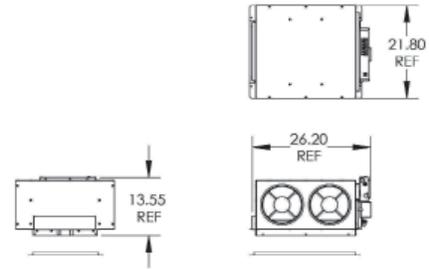
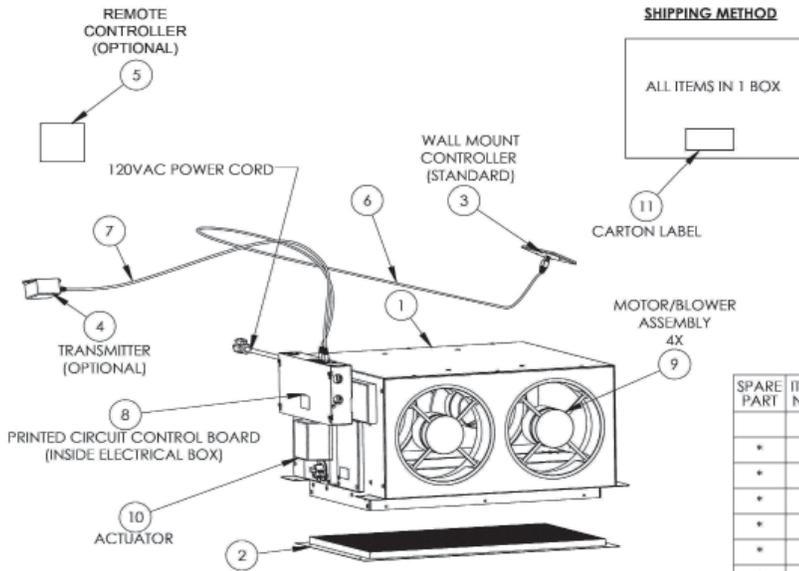
Model 1.7

Dimensions:	27" x 22" x 14"	(L x W x H)
Weight:	38 lbs	
Speed Settings:	2	
Tested Airflow:	1000/1712 CFM	(Low / High)
Tested Power:	105/159 watts	(Low / High)
Tested Noise**:	44/55 dBA	(Low / High)
Insulation	R-47	(XR)
Rough Opening:	14-1/2" x 22-1/2"	
Grille Dimensions:	16-1/2" x 24-1/2"	(cube-core, powder coated white)
Electrical:	120 VAC, 60Hz, 2.0 amps	
Installation:	Installs easily on 16" or 24" O/C joist	
Attic Venting/Open Windows	3.4 sq ft	
Controls:	Low voltage: Hard-wired wall switch, or optional wireless remote	

* Actual performance will vary from installation to installation. Due to our continual product improvement efforts, performance ratings and specifications are subject to change without notice.

** Tested at 45° and 1 meter from source.

Spare parts and serviceable components are listed in Figure 7, on the next page.



SPARE PART	ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
	1	N/A	FAN/DAMPER ASSEMBLY, VC-1.7	1
*	2	60510003417	CUBE CORE GRILLE, 14.5" X 22.5", WHITE, VC-1.7	1
*	3	60510003116	VC-SSC2, VARIABLE 2-SPEED CONTROL	1
*	4	60510003136	VC-RCT, REMOTE TRANSMITTER	1
*	5	60510003135	VC-RC, REMOTE CONTROL	1
*	6	60510003850	50' ORANGE ETHERNET CABLE, VC	1
*	7	60510003805	5' BLUE ETHERNET CABLE, VC	1
*	8	60510003517	PRINTED CIRCUIT BOARD REPLACEMENT, VC-1.7	1
*	9	60510003617	MOTOR/BLOWER REPLACEMENT, VC-1.7	4
*	10	60510003717	ACTUATOR REPLACEMENT, VC	1
	11	75010004017	LABEL, CARTON, VENTCOOL 1.7	1
	12	78010008000	VENTCOOL 1.7 MANUAL	1

NOTES:

- ITEMS 6, 7, 8, 9, & 10 ARE FOR REPLACEMENT ONLY.
 ITEM 6 (ORANGE ETHERNET CABLE) IS INITIALLY INCLUDED AS PART OF ITEM 3.
 ITEM 7 (BLUE ETHERNET CABLE) IS INITIALLY INCLUDED AS PART OF ITEM 4.
 ITEMS, 8, 9, & 10 (PRINTED CIRCUIT BOARD REPLACEMENT, MOTOR REPLACEMENT, AND ACTUATOR REPLACEMENT) ARE INITIALLY INCLUDED AS PART OF ITEM 1.
- ITEMS 4 AND 5 (REMOTE TRANSMITTER AND REMOTE CONTROL) ARE OPTIONAL ACCESSORIES THAT DO NOT COME STANDARD WITH THE VENTCOOL-1.7. THEY MUST BE PURCHASED AND SHIPPED SEPARATELY.
- FULL UNIT SHIPPED IN ONE BOX, USING LABEL #11.

VENTCOOL 1.7 60510002017

Figure 7, Spare Parts

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/ventCool

Field Controls Technical Support
 1.800.742.8368
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