

# **USER GUIDE**

HEAT RECOVERY VENTILATORS MODEL AVS CONSTRUCTO 1.0 HRV AND ENERGY RECOVERY VENTILATORS MODELS AVS CONSTRUCTO 1.0 ERV AND AVS CONSTRUCTO 1.2 ERV



VB0203



AVS Constructo 1.0 HRV (Top ports, model no.: 41502)

AVS Constructo 1.0 ERV (Top ports, model no.: 41506)

AVS Constructo 1.2 ERV (Top ports, model no.: 41556)

AVS Constructo 1.0 HRV (Side ports, model no.: 41500)

AVS Constructo 1.0 ERV (Side ports, model no.: 41504)

AVS Constructo 1.2 ERV (Side ports, model no.: 41554)

## PLEASE READ AND SAVE THESE INSTRUCTIONS

Venmar Ventilation inc., 550 Lemire Blvd., Drummondville, QC, Canada J2C 7W9 www.venmar.ca





These products earned the ENERGY STAR® by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. They meet ENERGY STAR requirements only when used in Canada.

#### Congratulations!

You have made an excellent choice! The operating principle of your Heat Recoery Ventilator or your Energy Recovery Ventilator will give you personal comfort you have never known before.

We have prepared this User Guide especially for you. Please read it carefully to ensure you obtain full benefit from your unit. Over the coming months, you will increasingly appreciate the feeling of living in a more comfortable home.

Please take note that this manual uses the following symbols to emphasize particular information:

#### A WARNING

Identifies an instruction which, if not followed, might cause serious personal injuries including possibility of death.

#### CAUTION

Identifies an instruction which, if not followed, may severely damage the unit and/ or its components.

NOTE: Indicates supplementary information needed to fully complete an instruction.

We welcome any suggestions you may have concerning this guide and the unit, and we would appreciate hearing your comments on ways to better serve you.

Please forward all correspondence to us at the address indicated on the product registration card included with this guide.

#### CAUTION

Make sure at all times that the outside intake and exhaust hoods are free from any snow during the winter season. It is important to check your unit during a big snow storm, so it doesn't draw in any snow. If this is the case, please operate the unit in recirculation mode (if available), or turn it OFF for a few hours.

Do not use your unit during construction or renovation of your house or when sanding drywall. This type of dust may damage your system.

Since the electronic control system of the unit is incorporated with a microprocessor, it may not operate correctly because of external noise or very short power failure. If this happens, unplug the unit and wait approximately 10 seconds. Then, plug the unit in again.

#### CAUTION

When leaving the house for a long period of time (more than two weeks), a responsible person should regularly check if the unit operates adequately. If the ductwork runs 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 18°C (65°F).

#### REPLACEMENT PARTS AND REPAIR

In order to ensure your ventilation unit remains in good working condition, you must use Venmar Ventilation Inc. genuine replacement parts only. The Venmar Ventilation Inc. genuine replacement parts are specially designed for each unit and are manufactured to comply with all the applicable certification standards and maintain a high standard of safety. Any third party replacement part used may cause serious damage and drastically reduce the performance level of your unit, which will result in premature failing. Venmar Ventilation Inc. also recommends to contact a Venmar Ventilation Inc. certified service depot for all replacement parts and repairs.

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### **1. DEFROSTING MODE**

When the outside temperature is below  $-5^{\circ}C$  (23°F), heat (or energy) recovery creates frost in the core.

To maintain its proper operation, the unit is programmed to defrost its core. The defrost frequency varies according to the outside temperature.

During the defrost cycle, the dampers close and the unit turns on high speed.

After defrosting, the unit returns to the operating mode selected by the user.

### 2. INTEGRATED CONTROL

All units are equipped with an integrated control, located under the unit, in front of the electrical compartment. Use the push button (1) to control the unit. The LED (2) will then shows on which mode the unit is in.



Refer to table below to see how to operate the unit using its integrated control.

PRESS ON PUSH BUTTON	LED COLOR	RESULTS
ONCE	AMBER	UNIT IS ON LOW SPEED
Twice GREEN		UNIT IS ON HIGH SPEED
THREE TIMES	No Light	UNIT IS OFF

If a problem occurs during the unit operation, its integrated control LED (2) will blink. The color of the blinking light depends on the type of error detected. Refer to Section 5 TROUBLESHOOTING on pages 17 and 18 for further details.

# NOTE: When using an optional main wall control, the integrated control must be turned off.

#### BOOT SEQUENCE

The unit boot sequence is similar to a personal computer boot sequence. Each time the unit is plugged after being unplugged, or after a power failure, the unit will perform a 30-second booting sequence before starting to operate. During the booting sequence, the integrated control LED will light GREEN or AMBER for 5 seconds, and then will shut off for 2 seconds. After that, the LED will light RED for the rest of the booting sequence. During this RED light phase, the unit is checking and resetting the motorized damper position. Once the motorized damper position completely set, the RED light turns off and the booting sequence is done.

NOTE: No command will be taken until the unit is fully booted.

### 3.CONTROLS

For more convenience, these units can also be controlled using an optional main control. Only one main control can be connected per unit.

- NOTES: 1. The integrated control must be turned OFF to use an optional main control.
  - 2. If an optional auxiliary control is used, its activation will override the main control operation.

The following illustrations show the optional main and auxiliary controls. Refer to next pages for operating instructions.

#### OPTIONAL MAIN CONTROLS



VC0148

ALTITUDE (PAGES 6 TO 11)





DECO-TOUCH (PAGES 12 TO 14)



LITE-TOUCH CONSTRUCTO (PAGE 15)



SIMPLE-TOUCH CONSTRUCTO (PAGE 15)



CONSTRUCTO (PAGE 16)

### OPTIONAL AUXILIARY CONTROLS



20-MINUTE LIGHTED PUSH BUTTON (PAGE 17)



DEHUMIDISTAT (PAGE 17)



60-minute Mechanical Timer (page 17)

3.1 ALTITUDE MAIN CONTROL

#### ALTITUDE WALL CONTROL KEYS AND INDICATORS

#### **MODE/PREF** KEY



Press this key to select whether Ventilation mode (air exchange with the outside), Recirculation mode (air recirculation within the house) or Program mode (the operation of the ventilation unit is customized by the user. Refer to **How to set Periods For Program Mode** section).



Press and hold this key for 3 seconds to access Preference setting menu.



8 SEC.

#### **A**RROW KEYS

Use the arrow keys to:

- Select ventilation and recirculation speeds.
- Review the programmed periods.
- Select Preference and Program values.

Press on Up arrow key for 8 seconds to display indoor relative humidity level (in percentage).

#### SET KEY



SMAR

Press and hold this key for 3 seconds to access setting periods for Program Mode.

Press this key to confirm the chosen option and go to the following setting.

#### SMART KEY

Press this key to enable and disable the SMART mode.

The SMART mode uses indoor relative humidity level and minimum and maximum outdoor temperature values to manage the air exchange with the outdoors, in order to enhance comfort in the house.

3.1 ALTITUDE MAIN CONTROL (CONT'D)

#### ALTITUDE WALL CONTROL KEYS AND INDICATORS (CONT'D) POWER INDICATOR



This indicator, located in the upper left side of the wall control, illuminates when the control powered on.

#### FILTER MAINTENANCE INDICATOR



This indicator, located in the upper right side of the wall control, illuminates when it is time to perform the ventilation unit filter maintenance (refer to section 4 Maintenance).

FILTER

Once the filter maintenance is done, reset the filter maintenance indicator as follow:



Press simultaneously on both MODE/PREF key and SET key for 5 seconds to turn off the filter maintenance indicator light.

#### **POWER FAILURE**

After a power failure, the Altitude wall control returns to its previous settings. However, if the power failure duration is more than 4 hours, the wall control looses only its day and time settings memory (these must be reprogrammed, see page 9). The rest of the preferences and settings is kept in permanent memory.

3.1 ALTITUDE MAIN CONTROL (CONT'D)

### How to set Preferences

In order to benefit from all of the features of your wall control, the preferences must be set. Table below shows all available settings.

Setting	ETTING AVAILABLE VALUES	
CURRENT DAY	Mon/Tue/Wed/Thu/Fri/Sat/Sun	Мол
HOUR DISPLAY	12:00 AM OR 24:00	12:00 PM
CURRENT HOUR	From 0 to 12 or 24	12
CURRENT MINUTE	From 00 то 59	00
TEMPERATURE UNIT	°C or °F	°C
Inside Temperature display	ON or OFF	ON
MINIMUM OUTSIDE	-40°С то 0°С	-25°C
Temperature for Air Exchange*	ок -40°F то 32°F	оя -13°F
MAXIMUM OUTSIDE	1°С то 40°С	27°C
Temperature for Air Exchange*	ок 33°F то 104°F	ов 81°F
*IN PROG OR SMART MODE, THESE LIMIT VALUES ALLOW TO STOP AIR EXCHANGE WITH THE OUTDOORS FOR BETTER COMFORT IN THE HOUSE.		
BACKLIGHT COLOR BLUE OR GREEN BLUE		BLUE
BACKLIGHT DISPLAY	AUTO OR ON	AUTO
AUTO: BACKLIGHT ACTIVATED 10 SECONDS WHEN ANY KEY IS PRESSED. ON: BACKLIGHT ALWAYS ON.		
OFF MODE FOR	VENTILATION/RECIRCULATION OR VENTILATION/OFF	VENT/RECIRC.
After a ventilation period, determines the second part of the cycle (Recirculation or OFF).		

MODE

PRFF

SEC

SET

3.1 ALTITUDE MAIN CONTROL (CONT'D)

#### SETTING PREFERENCES PROCEDURE

NOTE: While setting Preferences, the corresponding setting value flashes (e.g.: while setting current hour, hour is flashing).

Press and hold MODE/PREF key for 3 seconds to access the setting menu.

NOTE: You can exit Preferences setting by pressing on MODE/PREF for 3 seconds any time in the process, or wait 60 seconds. The modified values will be kept in memory.

If the control is set for the very first time, the current day will be the first setting to be made: MON (for Monday) will flash on screen.

Use the arrow keys to select value.

Press SET key to confirm the selected preference and go to next setting.

#### How to set Periods for Program Mode

The Program Mode allows the user to customize the operation of his/her ventilation unit, for week and weekend days. All days are divided in 4 periods. The periods starting hour and ventilation speed are factory set (see below).

DAILY PERIODS DEFAULT SETTINGS		
PERIOD	STARTING HOUR	Mode
PERIOD 1 (MORNING)	6:00 ам	MIN
Period 2 (Day)	9:00 ам	20 мім/н
PERIOD 3 (EVENING)	5:00 рм	MIN
PERIOD 4 (NIGHT)	11:00 рм	20 мім/н

3.1 ALTITUDE MAIN CONTROL (CONT'D)

### How to set Periods for Program Mode (cont'd)

TO CHANGE THESE VALUES:



3.1 ALTITUDE MAIN CONTROL (CONT'D)

### How to set Periods for Program Mode (cont'd)



Period 2 will appear on screen and hour display will flash. Proceed as for Period 1 for all daily periods. Once the ventilation speed or type for Daily Period 4 has been selected:



Set weekend days periods as for week days.

#### TO EXIT SETTING PERIODS



3.2 DECO-TOUCH MAIN CONTROL

#### BACKLIGHT

If the backlight is not illuminated, the first button pressed (no matter which button) shall turn on the backlight only, without incurring any other changes. The backlight remains illuminated for 10 seconds after the last button pressed.



#### **OPERATING MODES**



To change the operation modes of the ventilation unit, press the UP or DOWN arrow button. Operating mode label will then scroll up or down on LCD screen.

#### OFF

Put the unit on stand-by mode, so it will only respond to override wall controls (if present). On LCD screen, only the House is visible showing the control is powered on. This is the factory default mode.



#### RECIRC

Air is recirculated inside the house at high speed.



#### 20 мім/н

The ventilation unit exchanges air intermittently on a one hour cycle as follows: OFF for 40 min. (or recirculation on high speed for 40 min., see next page) and then exchange air during 20 min. on low speed. Repeat cycle after the 20 min. of air exchange.



#### MIN

Air is exchanged with the outside on low speed.



#### MAX

Air is exchanged with the outside on high speed.

#### 3.2 DECO-TOUCH MAIN CONTROL (CONT'D)

#### How to set the relative humidity (RH) level and choose between OFF in stand by or RECIRCULATION in stand by\*

Setting the relative humidity level allows to select the maximum desired indoor humidity level (in percentage). This value will be used to start the dehumidistat override (air exchange on high speed).



w: On 20 min./h. mode, the ventilation unit recirculates the indoor air for 40 min. on high speed and exchanges air with the outdoors on low speed during the remaining 20 min. of the hour.

### 3.2 DECO-TOUCH MAIN CONTROL (CONT'D)

#### **DEHUMIDISTAT OVERRIDE SELECTION**

In the operating modes MIN, MAX, 20 min./h. and RECIRC, the user can select a dehumidistat override so that if the relative humidity (RH) in the house exceeds the RH setting previously stored, the ventilation unit will exchange in high speed until the target indoor RH setting is reached.

An air exchanger is not a dehumidifier, but it can change the indoor relative humidity by bringing in drier or more humid air from outside during non heating season. The dehumidistat override function is useful to reduce indoor RH when the outdoor air is cool and dry during the heating season. Select a target RH between 30% and 55% according to your comfort. When outdoor relative humidity is high (e.g. in summer), turn off the override by pressing OK until the RH display disappears.



When the dehumidistat override is activated, the AUTO indicator will appear on LCD screen to show that the actual mode is being overridden. Also, the relative humidity appears (if it was not shown, see example beside). Once the target humidity level is reached, the unit goes back into its original operating mode and AUTO disappears from LCD screen.

NOTE: If the actual mode is MAX, only the relative humidity level appears on screen, AUTO label will not appear.

To engage the humidity override, press OK. The actual indoor RH and the %HUM label appear on LCD screen.

NOTE: If the actual RH is less than 20%, then the humidity indicator will display "LO", and if the actual RH is greater than 80%, then the humidity indicator will display "HI".

To turn off the dehumidistat override, press OK again. The RH and %HUM display will disappear from LCD screen.

#### MAINTENANCE INDICATOR

The maintenance indicator is represented by an M in a rounded triangle, at the top of the house (see at right). If this indicator is flashing, perform the regular maintenance, and if it is not flashing, perform the annual maintenance (refer to Section 4).



RESETTING MAINTENANCE INDICATOR: Press simultaneously on both arrow buttons, maintenance indicator will disappear from LCD screen.



#### **POWER FAILURE**

After a power failure, the wall control returns to its previous operation mode. All settings are kept in memory.

### 3.3 SIMPLE-TOUCH CONSTRUCTO MAIN CONTROL

Activate the push button; the color of the indicator shows the unit operating mode.

Color	Mode	Suggested Use
GREEN	Recirculation	Use this mode when you deem the inside air is too dry in heating season, or too humid during cooling season. In this mode, the unit stops exchanging with the outside and recirculates inside air at high speed.
YELLOW	Min Speed Ventilation	For normal daily operation.
RED	Max Speed Ventilation	For excess pollutants and humidity (parties, odors, smoke, etc.)



NOTE: After a power failure, the wall control turns off; no settings are kept in memory.

#### 3.4 LITE-TOUCH CONSTRUCTO MAIN CONTROL

Activate the push button; the color of the indicator shows the unit operating mode.

Color	Mode	Suggested Use
GREEN	Intermittent	Select this mode when you are away from the house for a few days. Also, when you deem the inside air is too dry in heating season, or too humid during cooling season. In this mode, the unit is OFF for 40 minutes per hour and ventilates at minimum speed the remaining 20 minutes of the hour.
YELLOW	Min Speed Ventilation	For normal daily operation.
RED	Max Speed Ventilation	For excess pollutants and humidity (parties, odors, smoke, etc.)



NOTE: After a power failure, the wall control turns off; no settings are kept in memory.

#### 3.5 CONSTRUCTO MAIN CONTROL

#### Adjusting AIR SUPPLY CONTROL

- 1) Select "MIN" or "MAX" using slide switch (A).
  - When "MIN" (minimum speed) is selected, if the knob (**B**) is set above the click, the unit will exchange in low speed with the outdoors and if it is set below the click, the unit will exchange on high speed with the outdoors until the desired humidity level has been reached.
  - When "MAX" (maximum speed) is selected, the unit will exchange on high speed with the outside either if the knob is set below or above the click.
- 2) To turn off the unit, slide the switch at the "OFF" vccose position.

#### Adjusting DEHUMIDISTAT

#### Setting during the summer months:

During this period, unless being afflicted with breathing problems, using the Dehumidistat is unnecessary. Set the slide switch to "OFF". (Do not exchange in day time; exchange at night time, if cool outside, or if it is not raining.)

#### Setting during the fall, winter and spring months:

#### (When severe condensation appears on windows)

- 1) Determine the humidity level in your house (bring the knob (**B**) counterclockwise to its maximum position, then bring it back clockwise slowly until you hear a "click").
- 2) Set the knob to one line under this temperature level or "click".

#### CAUTION

Do not select a temperature below -20°C (-4°F). This could lead to excessive dryness in the air causing discomfort for the occupants.

It is possible (and normal) to experience condensation on your windows when drastic changes in temperature happen (for example:  $-5^{\circ}C$  [23°F] to  $-20^{\circ}C$  [ $-4^{\circ}F$ ]). In that case, we suggest waiting a few days to allow the situation to stabilize.



#### 3.6 OPTIONAL AUXILIARY CONTROLS

Contrary to the main controls, many optional auxiliary controls can be connected to the same ventilation unit.

NOTE: When outside temperature drops below -5°C (23°F), the unit will perform a defrost cycle at the end of auxiliary control cycle.

3.6.1 20-MINUTE LIGHTED PUSH-BUTTON

Press once to activate the push button. The unit will operate on high speed for 20 minutes and the indicator will light up. To stop activation before the end of the 20-minute cycle, push one more time. The unit will get back to its previous setting.



#### 3.6.2 DEHUMIDISTAT

Adjust knob to the desired maximum indoor humidity level.



Do not select a humidity level below 30%. This could lead to excessive dryness in the air causing discomfort for the occupants.



3.6.3 60-MINUTE CRANK TIMER

This control makes the system operate at high speed for periods varying from 10 to 60 minutes.



### 4. MAINTENANCE

### **A**WARNING

Risk of electric shock. Before performing any maintenance or servicing, always disconnect the unit from its power source. When cleaning the unit, it is recommended to wear safety glasses and gloves.

Since this guide covers both HRV and ERV units, top and side ports, the illustrations shown in the maintenance procedures are typical.

The following procedures applies for both HRV and ERV units.

Refer to pictures below to identify the inner parts of your unit.



- HRV core
   Foam filter brackets
- Core retainers 
   G Foam core filters
  - 4.1 QUARTERLY MAINTENANCE



- ERV core
   Foam filter brackets
- Core retainers
   G F
- Foam core filters



Unplug the unit.

### **A**WARNING

Be careful while opening the door; water or small debris could fall out. For HRV units, always wait one minute after disconnecting the unit before opening the door in order to allow water to drain out from the unit.

② Unlatch the door and open it. Clean the inner side of the door with a damp cloth, then wipe with a dry one. Disengage the door from its hinge by sliding it from left to right and set aside.



### 4. MAINTENANCE (CONT'D)

4.1 QUARTERLY MAINTENANCE (CONT'D)

#### A WARNING

Always hold the core when rotating the two core retainers; failure to do so will cause the core to fall out.



- ④ Clean the inside walls of the unit with a clean damp cloth, then wipe with a clean dry one.
- ③ Wash the 2 core filters under hot water with mild soap. Rinse thoroughly and let dry completely before reinstalling on the core.
- ⑥ Remove the dust on the core using a vacuum cleaner and a soft brush attachment.

#### A WARNING

Once the core reinstalled in the unit, always rotate both core retainers to their initial position; failure to do so will cause the core to fall out.

- Slide the core in the unit. Secure the core by rotating both core retainers to their initial position.
- NOTE: Once the core reinstalled in the unit, the arrows (circled in picture below) on its sticker label must be pointing towards the unit motors.



- VB0078
- In Reinstall both foam filters and secure them to the core by pulling down the 2 foam filter brackets. Reinstall the door.
- ③ Close the door and plug the unit. NOTE: The unit will return to its previous setting after a 30-second delay for boot sequence.

#### 4.2 ANNUAL MAINTENANCE

Do the same operations as the Quarterly Maintenance (Section 4.1). Then, clean the exterior  $\mathsf{hood}(s).$ 

### 5. TROUBLESHOOTING

If the unit does not work properly, reset the unit by unplugging it for one minute and then replug it. If it still not working properly, refer to table on next page.

## 5. TROUBLESHOOTING (CONT'D)

PROBLEMS		TRY THIS
1.	On Altitude wall control, there is no outside temperature displayed on screen — — .	<ul> <li>At its very start-up or after a power failure, it takes some minutes before the outside temperature value appears on screen. Set the wall control on MIN or MAX in VENT mode.</li> <li>If the problem is not solved by the above, contact your installer.</li> </ul>
2.	On Altitude or Deco-Touch wall control, error code E1 or E3 appears on screen.	Contact your installer.
3.	Nothing works.	<ul><li>See if the unit is plugged in.</li><li>See if the unit is receiving power from the house circuit breaker or fuse.</li></ul>
4.	Condensation on windows (air too humid).	<ul> <li>Operate the unit on maximum speed ventilation until the situation is corrected.</li> <li>Leave curtains half-open to allow air circulation.</li> <li>Store all firewood in a closed room with a dehumidifier or in a well ventilated room, or store the wood outside.</li> <li>Do not adjust the thermostat of your heating system below 18°C (64°F).</li> </ul>
5.	Inside air too dry.	<ul><li>Temporarily use a humidifier.</li><li>Operate the unit in recirculation mode (if available).</li></ul>
6.	Air too cold at the air supply grille.	<ul> <li>Check if the exterior hood is not blocked.</li> <li>Operate the unit in low speed ventilation or in intermittent or recirculation mode (if available).</li> <li>Install a duct heater.</li> </ul>
7.	The LED of the integrated control is blinking RED.	<ul> <li>a) The door is open and the unit is not unplugged. Close the door and press once on the integrated control push button to reset the unit.</li> <li>b) There is a problem with the exhaust motor. The unit is OFF. Contact your installer.</li> </ul>
8.	The LED of the integrated control is blinking GREEN.	• There is a problem with the thermistor. The unit is still working, but will defrost frequently. Contact your installer.
9.	The LED of the integrated control is blinking AMBER.	<ul> <li>There is a problem with the motorized damper. The unit is OFF. For a 12-hour period, the unit will try to reset the damper at every 20 to 30 minutes. After 12 hours, if the problem is not solved, the unit stops trying to reset damper.</li> <li>Contact your installer.</li> </ul>
10.	The integrated control push button does not work.	<ul> <li>The 30-second boot sequence is not completed. See Boot Sequence on page 4.</li> <li>If the booting sequence is completed and the push-button still doesn't work, contact your installer.</li> </ul>

If the problem is still not solved, call your installer or the nearest approved Service Center. Also, you can reach the Customer Service Department at the following phone number: 1-800-567-3855. 20