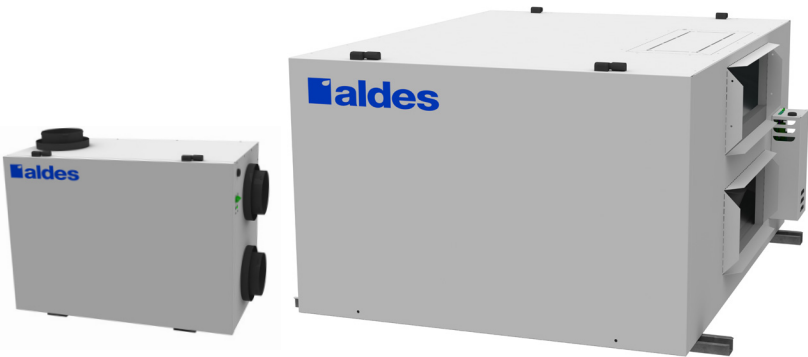




## INSTALLATION, OPERATIONS & MAINTENANCE MANUAL

# HEAT AND ENERGY RECOVERY VENTILATORS LIGHT COMMERCIAL



Meets Standards;  
C22.2 no 113 and  
UL 1812

### MODELS:

H/E280 • H/HK/E/EK400 • H/HK/E/EK650 • H/HK/E/EK1100 •  
H/E/EK1800

### TO BE COMPLETED BY CONTRACTOR AFTER INSTALLATION

Installer: Leave this manual for the homeowner

\_\_\_\_\_

Model

\_\_\_\_\_

Installing Contractor

\_\_\_\_\_

Telephone / Contact

\_\_\_\_\_

Serial Number

\_\_\_\_\_

Installation Date

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## INTRODUCTION

You are now the proud owner of an ALDES heat or energy recovery air exchanger. ALDES thanks you for purchasing this unit. We recommend that you follow the instructions in this guide to ensure that it will provide you with years of comfort.

First fill in the warranty information sheet on the last page of this brochure. This information is required for any warranty claim.

## HEAT RECOVERY AIR EXCHANGER

This unit is specially designed to create a change of air in your office or small business. An ALDES heat or energy recovery exchanger will provide continuous ventilation on demand and will also dehumidify the ambient air. In winter, it will eliminate any condensation or frost that may form on the windows of your office or small business, extending the life of your building.

## INSTALLATION INSTRUCTIONS

### Box contents

Check that all components are included in the packaging.

- Air exchanger
- Bag of parts:
  - 2x Universal drain 3/8-1/2 inch
  - 2x Sealing washers
  - 2x Nuts
  - 1x "T" connection for drain pipe
  - 1x 11-foot clear drain hose
  - 1 x Electric Coil (optional)
  - 1 x BACnet Control System (optional)

### Installation Accessories

Additional parts may be purchased to complete the installation. The following list is recommended for a typical installation.

- Digital Multifunction Wall Control (P/N 200500242\_FC)
- Electronic humidistat with liquid crystal display(P/N 200500227)
- 20/40/60 timer (P/N 200500228)
- Speed control ( P/N 200500229)
- Modes control (P/N 200500230)

## LOCATION

### Unit

The Aldes unit should be installed in an area where the temperature is always above freezing.

Choose the location of the unit so that the ducts are short and with few changes of direction. This will allow the system to operate optimally. The heat or energy exchanger must not be installed in a cooking area. The appliance must be located in a place that is accessible for maintenance or servicing.

### Supply Grilles

Supply grilles should be installed close to areas with high humidity levels. They are usually located on the ground floor, in the corridor between the kitchen and the bathroom, and in the basement, near the bathroom. They should not be placed in a room containing a combustion appliance, such as an oven or fireplace. The grilles can be installed on the ceiling or on a wall. Place the grille 12" (30 cm) from the ceiling.

### Diffusers

Diffusers are normally installed in corridors as far away from the room air inlet as possible. This forces the air to circulate through most of the building.

The diffuser can be wall or ceiling mounted. If it is located in an occupied area, we recommend ceiling mounting. This allows fresh air to be mixed with the room air before reaching the occupants, thus improving comfort levels on a cold winter's day. A wall diffuser should be located 12" (30 cm) from the ceiling.

### Humidity Control

The humidity control (humidistat) should be installed where excess humidity is most likely to be detected. This is usually between the bathroom and the kitchen. If you want to control humidity mainly in the basement, the control should be installed there. Make sure there is good air circulation around the humidity control. Do not, for example, place it behind a door. The installation of the air exchanger must comply with the standards applicable in your region.

## INSTALLATION

### Cabinet

The air exchanger is designed to be installed on a support or suspended from the structure. When the unit is installed on a support, vibration insulators must be placed underneath the casing to prevent noise propagation.

## Light Commercial HRV/ERV

The air exchanger must be levelled horizontally to drain condensation away from the unit. Connect the two ends of the drain hose to the drains at the bottom of the unit (see picture) and connect the central drain to the building's drainage system. A "p-trap" type installation is required for the drain as shown in the figure to the right. Refer to a certified installer if you have any questions.



## Exhaust Damper

The exhaust damper is installed through an outside wall at a minimum height of 18" (46 cm) from the ground. It must be located in an unobstructed area and comply with the standards applicable in your region.

## Fresh Air Intake

This air intake is installed through an outside wall more than 6 ft (185 cm) from the exhaust damper and at least 18" (46 cm) from the floor. It must be located in an unobstructed area and comply with the standards applicable in your region.

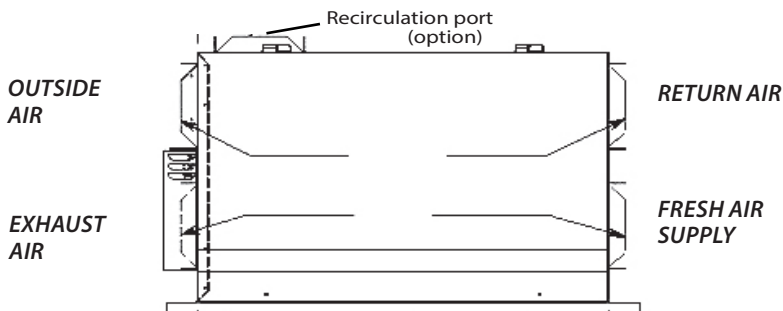
## Humidity Control

The humidity control must be installed on the wall, approximately 5 ft (150 cm) from the floor. It is connected to the box by a 4-wire 14 to 18 gauge cable. Connect these wires to the terminal block inside the appliance as shown in the electrical diagram on page 8. These wires transmit a voltage of 24 V.

The recommended installation is with a standard wall-mounted electrical box. Consult an electrician if you have any questions.

## Ducts

The use of straight rigid ducts is recommended for connections to the unit in order to guarantee the expected performance of the ventilator. This recommendation also applies to any other long runs in the ventilation duct. They offer less resistance to airflow than flexible ducts and are easier to clean. Connect the ducts to your central unit as shown in the diagram below.



## Light Commercial HRV/ERV

Any duct running through unheated areas must be insulated. The duct between the outside air intake and the unit must be insulated and covered with a condensation barrier. The exhaust duct near the exhaust damper must be insulated over a length of 3 ft (1 m) and also fitted with a condensation barrier. Seal these connections with duct tape.

## Electric Coil (optional)

For electric coil installation instructions, refer to the manufacturer's installation manual included in its original box. For electrical connection paired with the Aldes HRV/ERV, see the "Electrical Connection" section below.

P/N	Power	Dimensions (in.)			Minimum airflow (CFM)	VAC-Ph	Current (A)
		W	H	D			
300200001	4 kW	10	8	6	167	240-1	16,67
300200002	8 kW	14	8	7	233	240-1	33,33
300200003	10 kW	20	8	6	334	240-1	41,67
300200004	12 kW	24	8	6	400	240-1	50,00

Availability				
Power	H/E/HK/EK400	H/E/HK/EK650	H/E/HK/EK1100	H/E//EK1800
4 kW	●	●	●	●
8 kW		●	●	●
10 kW			●	●
12 kW				●

## Electrical Connection

Once all the ventilation ducts have been installed and the connections to the wall controls are made, connect the HRV/ERV to an electrical power source according to the electrical specifications for your unit model.

### CAUTION:

If the power supply is 208 V, make the following modification:

1. Remove the fan's electrical panel cover with a screwdriver.
2. Locate the transformer shown in Figure 1 below.
3. Remove the connection cable from the right-hand connector (labelled 230 V) and connect the cable to the centre connector (labelled 208 V), as shown in Figure 2 below.
4. Replace the electrical panel cover and screws.

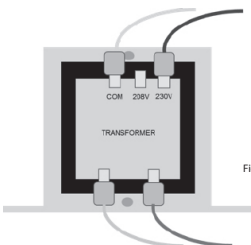


Figure 1: Transformer Wiring for 230V

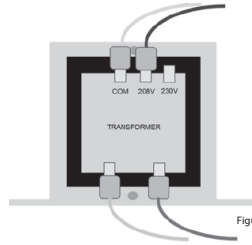


Figure 2: Transformer wiring for 208V

## All HRV/ERV models:

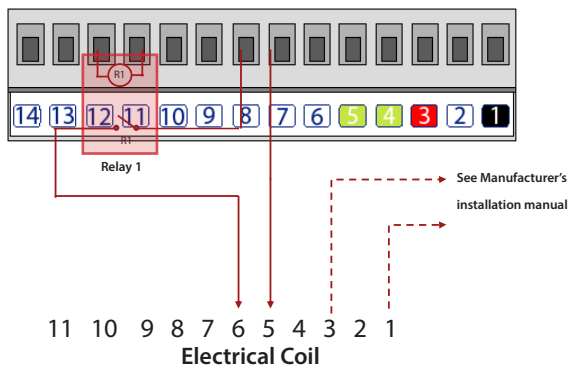
If the HRV/ERV is equipped with a power cord, then plug the power cord into an outlet that matches the unit's power supply requirements. 120 V NEMA 5-20 grounded outlet or 230 V NEMA 6-15 grounded outlet. **DO NOT USE AN EXTENSION CORD.**

If the HRV/ERV does not have a cord (model numbers ending with -N), it must be connected to the power supply by a certified professional electrician according to the standards and regulations applicable to your region.

ans

To connect the HRV/ERV:

1. Make sure the circuit breaker is turned off during installation.
2. Locate the junction box on the HRV/ERV.
3. Remove the box cover with a Philips screwdriver. Save the screws for replacing the box cover during step 8.
4. Insert the electrical conduit into the 7/8 inch (22.3 mm) hole on the cover and secure it using the means appropriate to the type of conduit being used.
5. Pass the electrical wire through the conduit.
6. Strip the insulators 1/4 inch (6.4 mm) from the ends of the wires.
7. Connect the wires to the terminal block located in the junction box of the HRV/ERV.
8. If an electric coil (optional) is to be connected, proceed as illustrated in the diagram below.

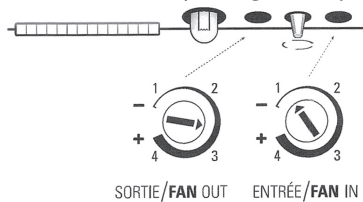


9. Replace the box cover with the conduit on the electrical box and secure it with the screws left over from step 3.
10. Turn on the circuit breaker and power up the HRV/ERV.

## Balancing Airflow

The installation must balance the flow of air supplied from outside and the flow of air exhausted so that their difference is less than 10% of the maximum flow. Measure the flow rates using a flow meter and adjust the flow rates using the adjustment potentiometers for the fresh air circuit (inlet) and for the stale air circuit (outlet) to obtain the desired flow rates. Air balancing is particularly important in homes with combustion appliances or those located in areas where radon gas can emanate from the ground.

Fan speed can be adjusted individually using the adjustment knobs on the top of the electrical box.

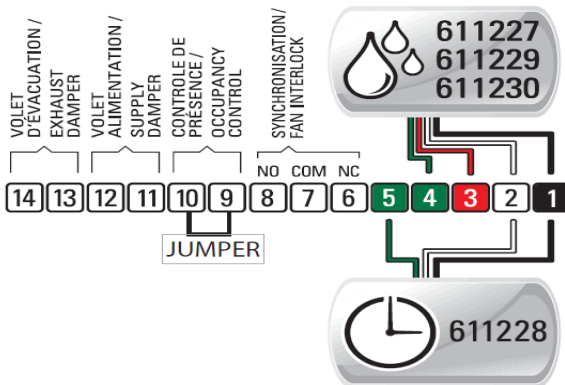


Si un serpentin électrique (optionnel) est raccordé au système, s'assurer que le débit de l'appareil soit au-dessus des valeurs minimales dans le tableau ci-dessous.

Unités	Min. PCM
H/E/HK/EK400	166 PCM
H/E/HK/EK650	233 PCM
H/E/HK/EK1100	333 PCM
H/E/HK/EK1800	400 PCM

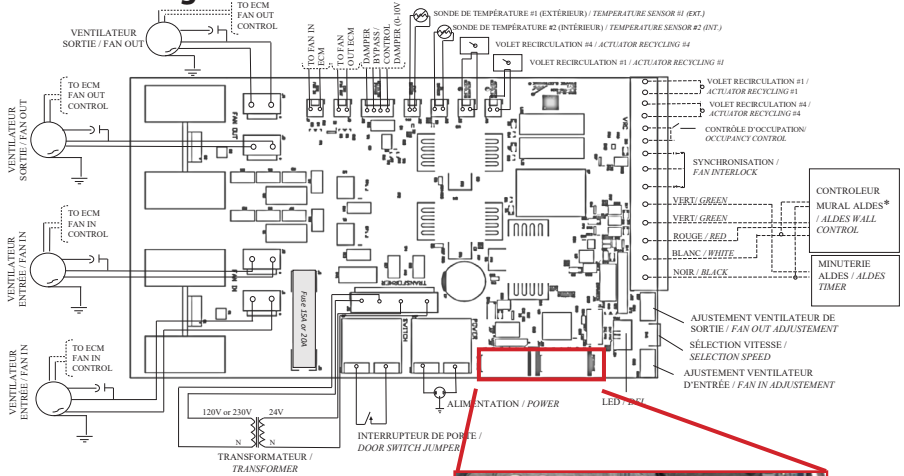
## Connecting the Unit

We recommend using 14 to 18 GA wire. Make sure you always see a jumper between 9 and 10.

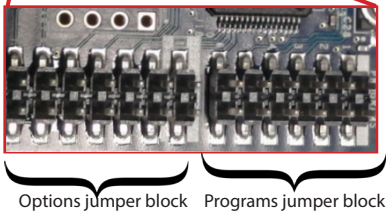


- 14 BLANC WHITE
- 13 BLANC WHITE
- 12 BLANC WHITE
- 11 BLANC WHITE
- 10 BLANC WHITE
- 9 BLANC WHITE
- 8 BLANC WHITE
- 7 BLANC WHITE
- 6 BLANC WHITE
- 5 VERT GREEN
- 4 VERT GREEN
- 3 ROUGE RED
- 2 BLANC WHITE
- 1 NOIR BLACK

# Electrical Diagram



\*Refer to the user guide for Aldes wall control installations  
 \*\*Fuses 15A or 20A are replaceables



## Configuration Options

Options jumper block      Programs jumper block

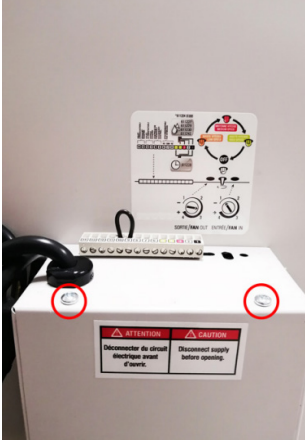
To activate the different modes on your device, you need to move a jumper on the circuit board. This can be done without any special tools by following the instructions below. It is recommended that you do this before any other installation step.

1. Switch off the unit to avoid the risk of electric shock or damage to the unit's circuit board.
2. Remove the terminal block by pulling firmly towards you.



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3. Using a Phillips-head screwdriver, remove the two screws holding the cover to the circuit board.



4. Once the cover has been removed, locate the jumper pins on the circuit board. They are located just behind the motor speed controllers at the front of the unit. In the next few pages, you'll see how to place the jumpers to enable or disable your options.

5. In order to configure the different modes available to the unit, you will need to move different jumpers in the "options" terminal block. This is made up of pins numbered 1 to 7. Below are the configurations for each of the options.

#### 5a) Defrost Modes

- By default, the HRV/ERV is configured in **Normal Defrost** mode, with no jumpers on rows 5 and 6. Normal Defrost mode is optimized for most climate zones. The unit will automatically protect the core from frost formation by periodically engaging high-speed recirculation or exhaust.
- For extremely cold areas, you can choose the **Extended Defrost** mode, which increases the duration of the defrost cycle. To activate the **Extended Defrost** option, place a jumper on row 6 and ensure that it connects the two pins on that row.



- The **Comfort Defrost** option prevents the HRV/ERV from alternating between high and low speed during defrost cycles so that there is no audible difference between exchange and defrost. To activate the **Comfort Defrost** option, place a jumper on row 5 and ensure that it connects the two pins on this row.



- **Note that the Extended Defrost and Comfort modes must not be activated at the same time.** Therefore, do not place jumpers on rows 5 and 6 at the same time.

#### 5b) Relay Mode

- In **Relay Mode**, an external device (e.g., Air Handler) or an external controller will send a signal to the unit to indicate when it should start operating.
- By default, **Relay Mode** is DISABLED on our devices.
- To enable **Relay Mode**, place a jumper on row 7 and ensure that it connects the two pins on that row.



#### 5c) Variable Speed Mode (0-10V mode)

- **Variable Speed** mode allows the unit to operate at any speed between 0 and 10 VDC rather than at discrete values. The maximum speed can be selected manually on the HRV/ERV during balancing (see Balancing Airflow on page 7).
- By default, 0-10V mode is OFF when there is no jumper on row 4.
- To ENABLE the 0-10V mode, place a jumper on row 4 and ensure that it connects both pins on that row.



#### 5d) Low Speed Mode

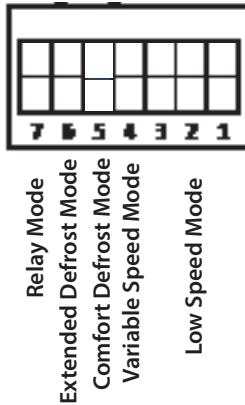
- » To enable HRVs and ERVs to better adapt to a variety of applications, the **Low Speed** mode for continuous ventilation can be further reduced (e.g., for smaller spaces). Please refer to model specifications for airflow levels at reduced speed.
- » By default, the **Low Speed** mode is DISABLED when there is no jumper on row 2.
- » To ENABLE **Low Speed** mode, place a jumper on row 2 and ensure that it connects both pins on that row.

## Light Commercial HRV/ERV



6. . Reverse the process above by reinstalling the circuit board cover, followed by the terminal block.

Here is a summary of the different options and how to configure the jumpers to activate them.



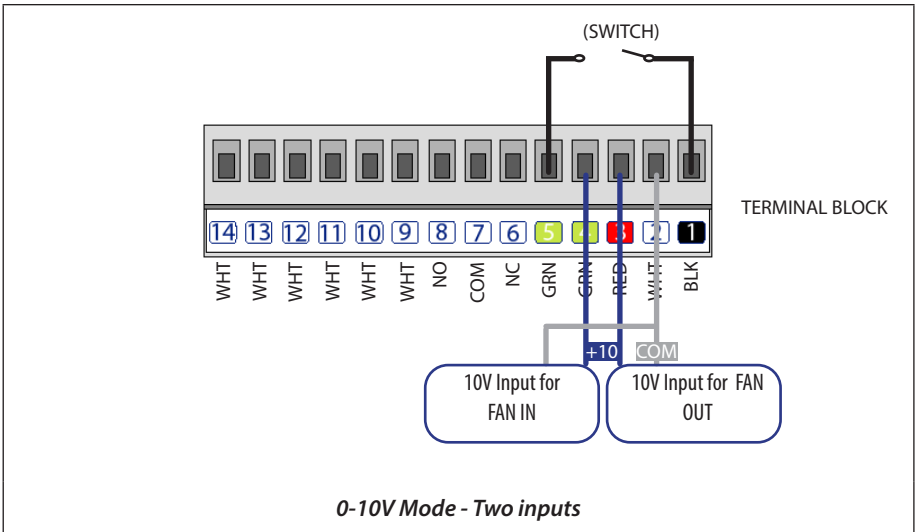
## Wiring the Unit for 0-10V Mode

With this new function, the unit can be controlled by external 0-10 VDC signals to provide continuously variable speeds and optimize indoor air quality and efficiency. It is possible to operate each fan independently (one input per motor), or to operate them together via the same input.

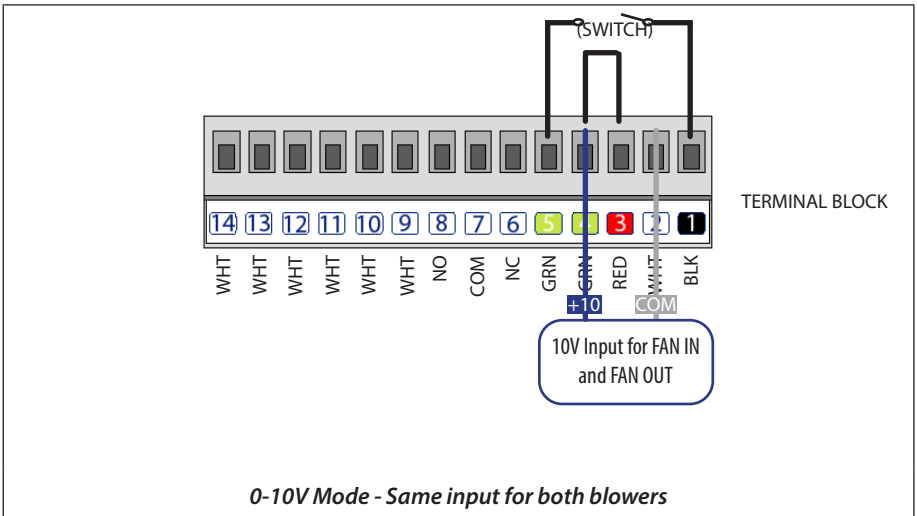
**Note: 0-10V mode cannot be used with a Minute Timer control (611228).**

To enable 0-10V mode with an independent input for each motor, connect your HRV/ERV as shown on the next page:

Light Commercial HRV/ERV



To enable the 0-10V Mode with only one input for both motors, connect your HRV/ERV as illustrated below:



In both cases, the switch between the terminals 1 and 5 allows the user to choose between the manual and automatic modes. When the switch is off, the unit can be controlled manually, and the installer can calibrate the ventilation maximum speed (see Balancing Airflow, page 7).

When the switch is on, the 0-10V Mode is enabled. If the input signal is between 0V-0.5V, the blower is off. The blowers will run at variable speeds with inputs between 0.5V-9.5V, and will operate at maximum speed for inputs between 9.5V-10V.

## OPERATION

### Humidity Control

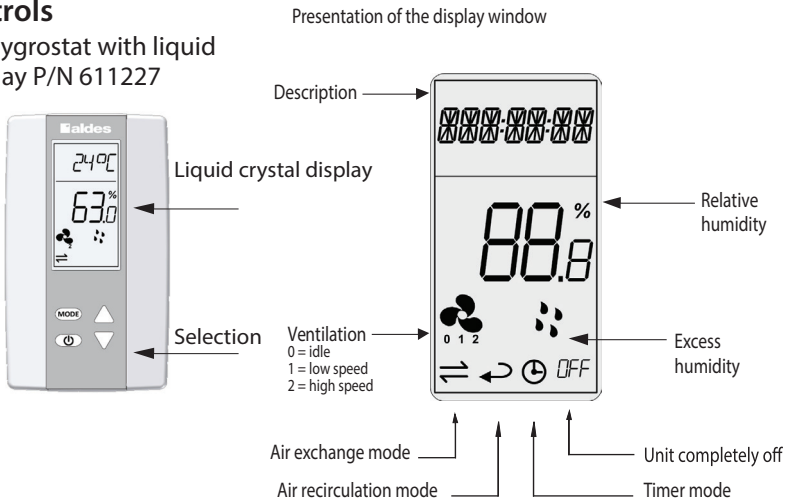
A dehumidistat is a device used to control the relative humidity level. Equipped with a humidity sensor and an electronic system, it effectively controls your air exchanger to keep the humidity level in your home below the desired limit (set point). What's more, you can select the operating mode of your air exchanger to suit your needs. You can create a continuous exchange of air with the outside, recirculate the air in the house or request a more sustained supply of fresh air when there are more people in the house. The unit is designed to quickly evacuate any excess humidity in your home. When the humidity level exceeds the set point, the unit exchanges air at high speed with the outside air until the desired humidity level is reached. It then automatically returns to its default speed. According to ASHRAE\* standards, a relative humidity level of between 30% and 60% is recommended. \*(American Society of Heating-Refrigerating and Air Conditioning Engineer)

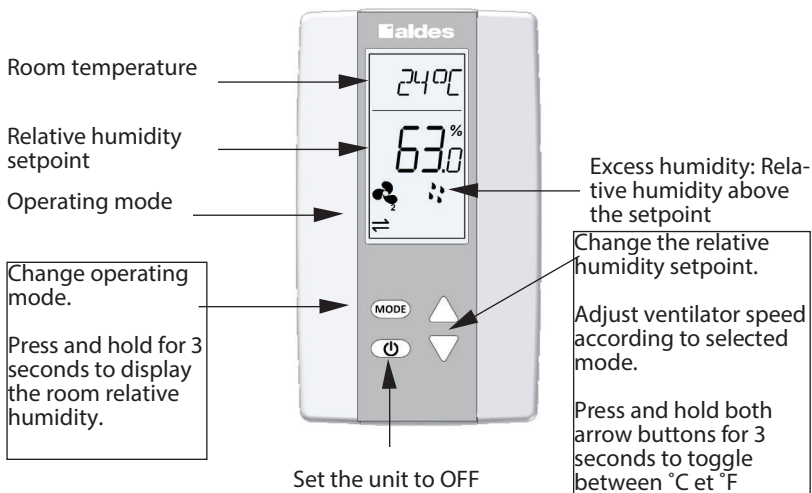
RECOMMENDED RELATIVE HUMIDITY TO PREVENT INDOOR CONDENSATION	
Outside air temperatureR	relative humidity
10°C / 50°F	Between 55 % and 60 %
0°C / 32°F	Between 50 % and 55 %
-10°C / 14°F	Between 45 % and 50 %
-20°C / -4°F	Between 40 % and 45 %
-30°C / -22°F	Between 30 % and 40 %

\*Values may vary according to the type of construction and fenestration of your house.

### Wall Controls

Electronic hygrostat with liquid crystal display P/N 611227





Operation Modes P/N 611227

Mode	Speed	Description
OFF	-	Unit stops completely. Remains idle regardless of the humidity level.
⇄	0	Remains idle until the humidity goes above the setpoint.
	1	Continuously exchanges air with the outside at low speed.
	2	Continuously exchanges air with the outside at high speed.
↻	1	Recirculates interior air at low speed.
	2	Recirculates interior air at high speed.
⌚	1	Exchanges air with the outside at low speed for 20 minutes. Then remains idle for 40 minutes.
↻⌚	1	Continuously exchanges air with the outside at low speed for 20 minutes. Then recirculates interior air at low speed for 40 minutes.

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### 20/40/60 Minute Timer P/N 611228

When you press the button, the unit switches to high-speed continuous air exchange mode for :

- 20 minutes
- 40 minutes
- 60 minutes

This command overrides the operating mode selected on the humidistat.



### Speed Control P/N 611229

Function: this control allows the fan unit to be operated in 4 modes.

1. Intermittent mode: successive cycles (20 min.)> exchange at low speed (40 min.)> off
2. Low-speed outdoor exchange mode
3. High-speed outdoor exchange mode
4. Off mode (lights off).

This command overrides the operating mode selected on the humidistat.



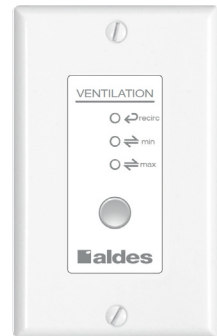
### Mode Control P/N 611230

Mode Control operates the ventilation unit in one of 4 modes of operation:

1. Recirculate indoor air
2. Low-speed fresh air exchange
3. High-speed fresh air exchange
4. Off/standby (when indicator lights are off)

Wiring: Colour-coded, 4-conductor wire to the H/ERV's terminal block.

This command overrides the operating mode selected on the humidistat.



## Maintenance

### ATTENTION

Always switch OFF the power supply before carrying out maintenance.


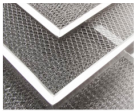
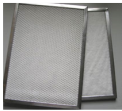
To access internal components, remove or lift the unit door. Remove the unit door by opening the latch or lifting the door off its hinges.

#### 1. External wall vents (inspect at least once a month)

- Make sure they are not blocked or obstructed by leaves, grass or snow.
- In winter, it is important to ensure that snow does not block the grille or that ice does not form on the grille.
- If the hood becomes blocked, this may cause the system to malfunction.

#### 2. Filters

- The filters can be removed when the door is removed or lifter off its hinges.
- Follow the cleaning schedule and procedure according to the type of filters in the machine.

FILTER TYPES		
MERV 8	Aluminium	High Efficiency <sup>†</sup>
		
USE: Trap impurities	Use: Trap impurities and grease	USE: Trap impurities, pollutants and pollen. Only use on Fresh Air supply side.
CARE: Clean seasonally with water and detergent spray	CARE: Clean 2 or 3 times per year with water and soap.	CARE: Replace each season

<sup>†</sup> MERV13 equivalent

#### 3. Core replacement or maintenance

- With the door removed or lifted, remove the filters. Then remove the recovery core by gently pulling it out of the unit. Wear gloves to protect your hands from the edges of the core, which may be sharp.
- Follow the cleaning procedure according to the type of core:
  - *Polypropylene (HRV)*: Vacuum the surfaces gently, soak the core in warm soapy water, rinse well and leave to dry.
  - *High Latent Transfer (ERV)*: Vacuum the surfaces gently.
- How to install the core safely :
  - Mount the bottom flange of the core guide into the bottom H channel approximately 1/4" (6mm).

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- Mount the left or right side flange of the core guide approximately 1/4" (6mm) followed by the other side.
- Mount the top flange of the core guide into the top H channel approximately 1/4" (6mm).
- When all four corners are in place and the core is straight and even, push hard in the center of the core until the core stops on the back of the cabinet.

### 4. Motors (no maintenance required)

### 5. Condensation Drain - (once a year)

- a. Inspect the pipe, spout and "P-Trap" to ensure that mold or other elements are not blocking the drain pipe.
- b. Flush with warm, soapy water.
- c. Replace it if it is blocked or cannot be cleaned.

### 6. Duct System

- a. The ducts of your ventilation system can accumulate dirt.
- b. Clean the ducts once a year.
- c. We recommend that you have your ducts cleaned by a specialist company.

### 7. Cabinet (twice a year)

- a. When the door is removed, wipe the inside of the cabinet with a damp cloth to remove any dust or debris.
- b. USE WATER ONLY. DO NOT USE PRODUCTS CONTAINING SOLVENTS. DO NOT USE HOUSEHOLD CLEANERS.
- c. Wipe off excess water with a dry cloth.

### 8. Fans (no maintenance required)

Once servicing is complete: put the core and filters back into the unit. Close or reinstall the door on its hinges, lock the door and switch the appliance back on.

## Replacement Filters

Models HRV/ ERV	No. of filters required	High Efficiency		Aluminium		MERV 8	
		P/N	No. filters in pack	P/N	No. filters in pack	P/N	No. filters in pack
<b>H/E280</b>	2	300500265	2	300500266*	2	-	-
<b>H/E400</b>	4	300607040	2	300607025*	2	300607046	2
<b>HK400</b>	6	300607041	3	300607026*	3	300607047	3
<b>EK400</b>	6	300607042	3	300607027*	3	300607048	3
<b>H/E650</b>	4	300500265	2	300500266*	2	300607039	1
<b>HK650</b>	8	300607043	4	300607128*	4	300607049	4



Models HRV/ ERV	No. of filters required	High Efficiency		Aluminium		MERV 8	
		P/N	No. filters in pack	P/N	No. filters in pack	P/N	No. filters in pack
<b>EK650</b>	8	300607044	4	300607029*	4	300607050	4
<b>H/E1100</b>	6	300500265	2	300500266*	2	300607039	1
<b>HK1100</b>	12	300607043	6	300607128*	6	300607049	6
<b>EK1100</b>	12	300607044	6	300607029*	6	300607050	6
<b>H/E1800</b>	6	300500412	3	300500414*	3	300500411	3
<b>EK1800</b>	12	300607045	6	300607030*	6	300607051	6

\* Filter usually supplied with the unit.

## GENERAL INFORMATION

### Warranty

The warranty period for light commercial ventilation units begins on the date of manufacture indicated on the serial number (modelAAMMXXX where AA is the year and MM is the month).

The recovery core of an HRV, made of polypropylene or aluminium, is covered by a 5-years limited warranty. Counter-flow cores (HRV or ERV) and ERV enthalpy recovery cores are covered by a 5-years limited warranty. All other components of the unit are covered by a 2-years limited warranty.

The warranty does not apply to defects or failures resulting from improper installation, misuse, acts of God or any other circumstance beyond the Company's control. Excluded from this warranty is any claim for damages or any other claim for compensation.

ALDES shall not be liable for personal injury or property damage caused directly or indirectly by the ventilation equipment.

### Procedure to Follow

Should any part prove defective, it will be replaced by another part or repaired at the company's discretion. ALDES will only pay for the part, all other expenses are the responsibility of the consumer. Before removing a defective appliance, we recommend that you speak to one of our technicians. They may be able to suggest an easier way to solve your problem. Obtain an authorization number from our customer service department before sending any appliance for repair.

### Technical Support

Canada 1 800-262-0916/ Monday-Friday, 8:00 a.m. to 5:00 p.m. Eastern Time  
 USA 1 800-255-7749 / Monday-Friday, 8:00 am to 5:00 pm Eastern Time











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