## SAFETY INSTRUCTIONS

### WARNING

1. 120 Volts may cause serious injury from electric shock. Disconnect electrical power before starting installation or servicing. Leave power disconnected until installation/service is completed.
2. Sharp edges may cause serious injury from cuts. Use care when cutting plenum openings and handling duct work.
3. Dropping may cause personal injury or equipment damage. Handle with care and follow installation instructions.

### CAUTION

1. Read all instructions before beginning installation.
2. Improper installation may cause property damage or injury. Installation, service, and maintenance must be performed by a qualified service technician.
3. Do not use in pool applications. Pool chemicals can damage the dehumidifier.
4. Do not use solvents or cleaners on or near the circuit board. Chemicals can damage circuit board components.
5. Wait 24 hours before running the unit if it was not shipped or stored in the upright position.
6. Do not use dehumidification to prevent window condensation in the winter. To address window condensation, use ventilation to lower indoor humidity in the winter.
7. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
8. Children should be supervised to ensure that they do not play with the appliance.
9. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
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**SPECIFICATIONS**

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<thead>
<tr>
<th></th>
<th>MODEL E080</th>
<th>MODEL E100</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit Weight</strong></td>
<td>63 lbs.</td>
<td>64 lbs.</td>
</tr>
<tr>
<td><strong>Shipping Weight</strong></td>
<td>81 lbs.</td>
<td>82 lbs.</td>
</tr>
<tr>
<td><strong>Capacity</strong> 80°F, 60% RH Conditions</td>
<td>80 pints per day @ 185 CFM</td>
<td>100 pints per day @ 280 CFM</td>
</tr>
<tr>
<td><strong>Power</strong> 115 VAC, Single Phase, 60Hz</td>
<td>5.1A operating current</td>
<td>6.9A operating current</td>
</tr>
</tbody>
</table>
| **Dehumidifier Inlet Air Conditions** | | Dehumidification: 50°F – 104°F, 40°F dew point minimum  
Ventilation: 40°F – 140°F, 0% RH – 99% RH (non-condensing) |
| **Filter** | MERV 8, washable |
| **Airflow** | | |
| External Static Pressure ("w.c.) | Airflow (CFM) | External Static Pressure ("w.c.) | Airflow (CFM) |
| 0.0      | 185       | 0.0       | 280 |
| 0.2      | 135       | 0.2       | 245 |
| 0.4*     | 85        | 0.4       | 210 |
| 0.6*     | 175       |           |     |

**NOTE:** Rated capacity and current draw measured at 80°F/60% RH inlet conditions at 0.0 external static pressure.

*Maximum design external static pressure.

**SET UP DEHUMIDIFIER FOR INSTALLATION**

⚠️ **IMPORTANT:** Cut the strap securing the compressor shipping support bracket and remove the strap and shipping bracket. See FIGURE 1.

![FIGURE 1 – REMOVE SHIPPING BRACKET](image)
DUCT COLLARS

STANDARD BASEMENT AND ATTIC INSTALLATIONS (FULLY DUCTED)

- Use the screws in the parts bag to attach the duct collars to the inlet and outlet of the dehumidifier. The outlet collar has a backflow damper.
- The outlet duct collar may be attached to the top or end of the unit. Move the outlet cover to the location not being used. See FIGURE 2.
- Make sure there are no bends in the ductwork coming off the outlet for a minimum of 4". This will ensure that the ductwork will not interfere with the backflow damper function.

CLOSET INSTALLATIONS

Use the screws provided in the parts bag to attach the duct collars if desired or required based on recommendations below:

- Where inlet space is restricted, the inlet duct collar is optional.
- When the dehumidifier is installed below the HVAC equipment and requires a vertical discharge, move the top access panel to the end of the unit. The outlet duct collar with backflow damper is not required. See FIGURE 3.
- When the dehumidifier requires a ducted vertical discharge, remove the top access panel and remount on the outlet of the unit. Install the outlet duct collar with backflow damper on top of the unit. See FIGURE 3.

CRAWL SPACE, SEALED ATTICS OR BASEMENT INSTALLATIONS

If dehumidifying the space in which the dehumidifier is installed, the duct collars do not need to be installed. Leave the outlet cover on top of the unit. See FIGURE 4.
CONTROL LOCATION

The on-board control can be located on the top of the dehumidifier or can be relocated to the front of the dehumidifier if the control cannot be seen/accessed in the top orientation. It may also be rotated 180 degrees in either orientation as shown in FIGURE 6.

TO MOVE THE CONTROL

1. Remove the front control panel cover.
2. Remove the filter access door and filter.
3. Detach the on-board control by removing the four (4) screws around the control. **NOTE:** Use one hand to support the bottom of the on-board control when removing.
4. Keep the control in the unit and relocate to the front access hole.
5. Secure the control with the same four screws used to attach the control to the top of the unit.
6. Secure the control panel cover to the top of the unit.

**NOTE:** E100V UI can be rotated but not relocated.
HARD WIRING – E080H & E100H

⚠️ WARNING

**ELECTRICAL SHOCK HAZARD:** 115-volts may cause serious injury or death from electrical shock. Disconnect and tag electrical service before starting installation or field-service. Leave electrical service disconnected until installation or field-service is complete.

**ELECTRICAL SHOCK HAZARD:** An interrupted or broken ground may cause property damage, serious injury or death should an electrical fault occur. The cabinet must be grounded in accordance with NEC ANSI/NFPA 70-2011 or local codes. In Canada, refer to Canadian Electrical Code CSA C22.1.

**FIRE HAZARD:** Use of improper wire may cause serious injury, property damage or death due to fire. Do not use aluminum wire for electrical service to the dehumidifier. Use only copper wire.

⚠️ CAUTION

Use of an undersized circuit breaker may cause property damage and/or the need for mold remediation service. See [SPECIFICATIONS](#) for wire and circuit breaker sizing.

The Model E080H and the Model E100H must be hard wired. An electrical disconnect switch can be installed as needed to comply with appropriate codes or ordinances. The ON/OFF switch on the dehumidifier interrupts the 115 VAC service to the internal components of the dehumidifier, but does not disconnect the power supply at the 115 VAC terminals on the dehumidifier.

**United States Installations:** Make all electrical connections in accordance with the current edition of the NEC ANSI/NFPA 70 and any local codes or ordinances that may apply.

**Canada Installations:** Make all electrical connections in accordance with the current edition of the Canadian Electrical Code CSA C22.1 and any local codes or ordinances that may apply.

**ELECTRICAL SPECIFICATIONS FOR HARD WIRING**

<table>
<thead>
<tr>
<th></th>
<th>MODEL E080H</th>
<th>MODEL E100H</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage</strong></td>
<td>110-120 VAC, 60 Hz, 1 phase</td>
<td>110-120 VAC, 60 Hz, 1 phase</td>
</tr>
<tr>
<td><strong>Minimum Circuit Ampacity (MCA)</strong></td>
<td>9A</td>
<td>12A</td>
</tr>
<tr>
<td><strong>Maximum Fuse or Circuit Breaker Amps (MOP)</strong></td>
<td>16A</td>
<td>20A</td>
</tr>
<tr>
<td><strong>Minimum Wire Size AWG</strong></td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>
1. Disconnect electrical service at the main fuse or circuit breaker box.
2. Install any code required disconnects to the line service within eyesight of the appliance.
3. Remove the side panel and electrical service panel from the dehumidifier. See Figure 7.
4. Route the service cable through the 7/8" diameter hole where the power cord was removed. USE ONLY COPPER SUPPLY WIRES.
5. Secure the cable/conduit to the dehumidifier using fittings/connectors approved for the type of cable/conduit used.
6. Connect the ground wire of the service cable to the ground lug in the electrical service box. See Figure 8.
7. Connect the line voltage wires of the service cable to the LINE BLK and NTRL WHT terminals. See Figure 8.
8. Reattach the electrical service panel and side panel.
9. Restore electrical service at the main fuse or circuit breaker box.

FIGURE 7 – ELECTRICAL SERVICE BOX LOCATION

FIGURE 8 – HARD WIRE TO 115 VAC SERVICE
LOCATION CONSIDERATIONS

- Allow sufficient clearance for filter removal and to prevent airflow obstruction
- Electrical service access will require the removal of the side panel shown. Allow sufficient space for service on this side of the unit.
- If locating the unit in an attic or crawl space, a Model 76 Control mounted in the living space is recommended.
- For attic installations, it is recommended that the dehumidifier be suspended.
- Always install the dehumidifier in a condensate pan when locating in or over a finished space.

DRAIN INSTALLATION

The drain outlet on the dehumidifier can be hard piped using a 3/4” PVC Slip x 3/4” MNPT fitting and 3/4” nominal drain tubing or the provided 3/4” MNPT x 3/4” hose barb fitting. 3/4” clear PVC tubing can be used to drain the dehumidifier. Always maintain a constant downward slope from the dehumidifier to the drain and do not allow soft tubing to curl up which may result in air lock.

**NOTE**: PTFE thread seal tape is recommended for the threaded connection and **hand tighten only**. If hard pipe is used, PVC primer and cement is recommended for the slip fit connection. Remove drain insert before priming and gluing in the PVC fitting. Replace drain insert after PVC glue has fully dried.

**CAUTION**

Do not damage drain cover. The drain cover is a critical feature of the dehumidifier drain management system.

**WARNING**

Running the dehumidifier without the drain insert can lead to condensate leaks. See **FIGURE 10**.
LEVELING

The feet can be adjusted to level the unit and accommodate drain fittings and secondary condensate pans as required. Refer to top mounted bubble level and adjust feet until bubble is within the outer circle. **Leveling is required** to ensure proper drainage from the dehumidifier. See **FIGURE 11**.

CONDENSATE PAN, CONDENSATE PUMP AND FLOAT SWITCH

Always install the dehumidifier in a condensate pan when locating in or above a finished space. Adhere to local codes regarding draining of the condensate pan. If a condensate pump is needed, install it in the condensate pan as well.

Install a condensate overflow safety switch (i.e. float switch) in the condensate pan, remove the factory installed jumper wire between the Float Switch terminals on the control and wire the float switch to the dehumidifier as shown in **FIGURE 12**. Overflow safety switches on condensate pumps can be wired to the Float Switch terminals in a similar fashion.
DUCTING TO HVAC SYSTEM – BASEMENT AND ATTIC INSTALLATIONS

The **Preferred Installation** is to duct the dehumidifier to pull air from and return dehumidified air to the HVAC return duct. This installation will ensure warm, dehumidified air is thoroughly mixed with the HVAC system air before being discharged into the living space. Alternatively, the dehumidifier can be ducted to discharge to the supply duct, but the external static pressure of the HVAC system must not exceed 0.4” w.c. for the E080 and 0.6” w.c. for the E100.

**REQUIRED COMPONENT**

- 10” ductwork

**DUCTING NOTES**

- Use insulated duct when the dehumidifier is located in an unconditioned space such as an attic or a garage.
- Use a minimum of 12” of flex duct at the dehumidifier inlet and outlet to prevent vibration noise transmission.
- When ducting return to return (preferred), the dehumidifier must be wired to turn on the HVAC fan when operating (see page 14).
- When ducting return to supply, allow adequate space before the first branch duct to ensure the warm dehumidified air is thoroughly mixed with the HVAC system air.
DUCTING TO HVAC SYSTEM – CLOSET INSTALLATIONS

The dehumidifier in these applications is typically installed under or next to the HVAC equipment. In both types of installation, the dehumidifier inlet is not ducted and pulls from the living space through a grille or louvers in the HVAC closet door. The Preferred Installation is to locate the dehumidifier under the HVAC equipment and supply dehumidified air through the alternate outlet on the top of the unit directly to the HVAC return. NOTE: The dehumidifier must be wired to activate the HVAC fan during dehumidifier operation in this installation. In the Alternate Installation the dehumidifier is located next to the HVAC equipment and ducted to the HVAC supply duct using the outlet on the top of the unit. The supply side external static pressure of the HVAC system must not exceed 0.4" w.c. for the E080 and 0.6" w.c. for the E100.

▲ CAUTION

When installing the dehumidifier as part of a combustion type furnace (gas, oil, propane, etc.) HVAC system located in a closet, duct or locate the dehumidifier inlet and outlet and seal as needed to separate the circulation air from the combustion and ventilation air. Follow all local and national building and safety codes when installing or modifying any HVAC system.

OPTIONAL COMPONENT

• 10" Ductwork

DUCTING FOR STAND ALONE INSTALLATIONS OR NON-DUCTED INSTALLATIONS

In this installation the dehumidifier is not ducted to the HVAC system and is used to dehumidify a specific area. This installation is typically in basements or crawl spaces.

OPTIONAL COMPONENTS

• 10" ductwork
• Grilles with 10" duct collars

FIGURE 17 – PREFERRED CLOSET INSTALLATION

FIGURE 18 – ALTERNATE CLOSET INSTALLATION

FIGURE 19 – STAND ALONE DUCTED

DEHUMIDIFIED AIR IS SUPPLIED TO DUCTED SPACE

DEHUMIDIFIED SPACE

AIR IS PULLED FROM DUCTED SPACE

10 FT. MIN

DEHUMIDIFIER

GRILLE WITH 10" DUCT COLLAR (2 PLACES)
DUCTING FOR TWO ZONE INSTALLATIONS

NOTE: Dehumidifier zoning is not recommended in HVAC zoning applications.

In this installation the dehumidifier controls the humidity in two separate zones, a Primary and Secondary Zone. The dehumidifier will dehumidify the Primary Zone as the first priority, and will switch to the Secondary Zone after the dehumidification needs of the Primary Zone have been satisfied.

IMPORTANT: Normally Closed dampers must be installed in the ducts serving the Primary Zone and Normally Open dampers installed in the ducts serving the Secondary Zone.

REQUIRED COMPONENTS

• 10" ductwork and fittings
• Grilles with 10" duct collars
• Drain line
• 2 – Aprilaire Model 6510, 10" Normally Closed damper
• 2 – Aprilaire Model 6610, 10" Normally Open damper
• 24 VAC transformer (40 VA min.) for dampers

NOTE: 5442 Basement Kit includes 2 – 6510 Dampers, 2 – 6610 Dampers and a 24 VAC (40VA) transformer

FIGURE 20 – WHOLE-HOME PRIMARY ZONE INSTALLATION

FIGURE 21 – WHOLE-HOME SECONDARY ZONE INSTALLATION
NOTE: Use 18-22 AWG wire for control wiring.

EXTERNAL CONTROL

Used as an external control, the Model 76 is mounted in the space that is to be dehumidified. When the dehumidifier is powered, the display on the dehumidifier control will show EXTERNAL to indicate that an external control is being used. External controls are recommended when the dehumidifier is installed in an attic and is ducted to the HVAC system.

The Model 76 uses a normally open (NO), dry contact (i.e. not a triac or other semiconductor) relay to complete the circuit between the DH terminals of the dehumidifier control. If using other controls such as a thermostat with dehumidification outputs, ensure the output is a dry contact type and set the NO/NC switch on the dehumidifier control (see FIGURE 22) to correspond with the control being used. The Aprilaire Model 8620 Thermostat or Model 8910 Home Comfort Control are recommended alternate controls and both use normally open contacts.

If an external control is used in a zoned application, it must be located in the Primary Zone (refer to the TWO ZONE – PRIMARY AND SECONDARY section on page 18 for details).

CRAWL SPACE/SEALED ATTIC CONTROL

Used as crawl space or sealed attic control (or remote control), the Model 76 is mounted in the living space while the dehumidifier is located in the area to be dehumidified. When the dehumidifier is powered, the display on the dehumidifier control will show REMOTE to indicate that a remote control is being used. The RH shown on the Model 76 is the RH measured at the dehumidifier.

Remote control is typically used for crawl space or sealed attic applications, but is also recommended when the dehumidifier and the space being dehumidified are inconvenient or difficult for the homeowner to access. Examples of this type of application include basements that may be inconvenient to access or storage areas.
WIRING THE DEHUMIDIFIER TO THE HVAC SYSTEM AND ZONE DAMPERS

NOTE: Use 18-22 AWG wire for wiring to HVAC system and zone dampers.

Pull off the wiring access cover near the dehumidifier control to access the wiring terminals. Snap the wiring access cover back into place after completing all wiring.

WIRING TO THE HVAC SYSTEM

When the dehumidifier is ducted to the HVAC system, it is recommended that it also be wired to the HVAC system as shown in FIGURE 24. If ducted to the HVAC system in return to return configuration, the dehumidifier must be wired to the HVAC system to prevent short circuiting dehumidified air directly back to the dehumidifier inlet. In return to supply ducting configuration, running the HVAC fan with the dehumidifier ensures the warm dry air is mixed with room air before being discharged to the home.

OPTIONAL W & Y WIRING

Wire the W and/or Y terminal to the HVAC system when using the ventilation feature of the dehumidifier (see VENTILATION on page 19).

Wire the dehumidifier Y terminal to the HVAC system if it is desired to disable the dehumidifier compressor from operating when the air conditioning is running. See DEH W/AC in SYSTEM SET-UP on page 16 for additional set up steps required to access this feature.

WIRING TO ZONE DAMPERS

NOTE: Dehumidifier zoning is not recommended in HVAC zoning applications.
If dehumidifier installation does not include ventilation or zoning and will not be wired to an external control, remote control or the HVAC system, proceed to INSTALLER TEST MODE section on page 17.

1. Check all wiring.
2. Make sure the wire access cover has been snapped back onto the on-board control.
3. Plug unit in and turn power switch to ON.
4. The on-board control screen should display OFF.

NOTE: If the display backlight is not on, the first button press (any button) will only turn on the backlight. Press the button a second time to achieve function.

5. Hold the MODE button on the on-board control for 3 seconds to enter the Installer Set-up Menu.
6. Navigate through the following screens to set up the dehumidifier for the installed application.
7. Use the ▲ or ▼ button to select items and use MODE to switch to the next set-up option. To exit installer set-up, all options must be scrolled through using the MODE button.
8. After the installer set up options have been completed, DONE will blink for 3 seconds and the control will return to the OFF screen.

REMOTE CONTROL – CRAWL SPACE/SEALED ATTIC

If not installing in a crawl space or sealed attic with Model 76 remote control, press MODE to go to VENT screen selections.

If installing in a crawl space or sealed attic with remote control, Enable and press MODE. The installer set-up is complete, proceed to INSTALLER TEST MODE section on page 17.

VENTILATION

If not using the dehumidifier to bring in outdoor air, press MODE to go to ZONE screen selections.

If using the dehumidifier for ventilation, enable and press MODE to select TIMED or AUTO.

If ventilating based on time only (no outdoor temperature restrictions), press MODE at the VENT TIMED screen to go to ventilation time selection screen.

If ventilating with outdoor temperature restrictions, use the ▲ button to go from VENT TIMED to VENT AUTO -B and then the ▲ or ▼ button to select the desired ventilation mode, B, C, or D. Press MODE to go to the ventilation time selection screen.

VENT-AUTO-B: Ventilation prevented when outdoor temperature is below 0°F and above 100°F. Between 0°F – 20°F ventilation is only allowed during a HVAC heat call.

VENT-AUTO-C: Ventilation prevented when outdoor temperature is below 0°F and above 100°F.

VENT-AUTO-D: Ventilation prevented when outdoor temperature is below 0°F and above 90°F. Between 0°F – 40°F ventilation is only allowed during a HVAC heat call.

VENT-AUTO-B, -C, -D modes apply outdoor temperature limits and require an outdoor temperature sensor to be installed.

Press the ▲, or ▼ button to adjust the ventilation time per hour from 0 to 60 minutes. After selecting time, press MODE to go to the ZONE screen selections.
To allow dehumidification during active air conditioning, select **ENABLED** and press MODE.

To disable dehumidification when the air conditioning is on, select **DISABLED** and press MODE.

An offset can be applied to the on-board humidity reading to avoid discrepancies with other humidity measuring devices in the home. Use the ▲ or ▼ button to select an offset from -5% to 5%. Press MODE to exit the installer set-up screens.
DEHUMIDIFICATION ONLY

If the dehumidifier is not already OFF, press the ON/OFF button to turn it off.

Press and hold the ON/OFF and MODE buttons for 3 seconds. The measured humidity, AIR SAMPLING and TEST will show on the display. If wired to the HVAC system, the HVAC blower will turn on and if there is/are damper(s) wired to the DEH DAMPER terminals of the control, the damper(s) will energize.

After three (3) minutes the dehumidifier compressor will turn on and DEHUMIDIFYING will replace AIR SAMPLING on the control screen.

After one minute of compressor operation, all outputs will turn off and DONE will blink for 3 seconds and then return to the OFF screen.

ZONING AND/OR VENTILATION

If the dehumidifier has been set up for ventilation, VENTILATING will appear on the display throughout Installer Test Mode, and the ventilation damper will be energized.

If the dehumidifier has been set up for zoning, PRIMARY ZONE will show on the display for the first minute of dehumidifier blower operation. After one minute, SECONDARY ZONE will show on the display and the zone dampers will de-energize.

INSTALLER TEST MODE

If everything is properly wired, the dehumidifier and all of the wired components will turn on and off during Installer Test Mode to demonstrate that all are properly operating. Installer Test Mode lasts for four (4) minutes. If the ON/OFF button is pressed during test mode, the dehumidifier will exit Installer Test Mode and return to the OFF screen.
START UP AND SEQUENCE OF OPERATION

SINGLE ZONE WHOLE HOUSE OR STAND ALONE USING THE DEHUMIDIFIER CONTROL

1. Press the ON/OFF button to turn the dehumidifier control ON. The display will show the current setting, and the dehumidifier blower and HVAC blower (if wired to the HVAC system) will turn on to start sampling the air.

The setting will be replaced by the measured humidity and **AIR SAMPLING** will show on the display.

2. Use the ▲ or ▼ button to adjust the humidity setting as desired. The recommended initial setting is **59%**.

3. After three (3) minutes of sampling, the measured humidity will be compared to the setting:
   a. If the humidity is above the setting, the dehumidifier compressor turns on and **DEHUMIDIFYING** will appear on the dehumidifier control display to show that the Model 76 is calling for dehumidification. The dehumidifier and HVAC blower (if on) will turn off when the RH measured by the Model 76 drops 3% RH below the setting.
   b. If the measured humidity is below the setting, the blowers turn off and the display returns to showing the RH setting.

4. The dehumidifier will sample again every 60 minutes, or at any time if the humidity setting is lowered.

CRAWL SPACE OR SEALED ATTIC (REMOTE) CONTROL USING MODEL 76

1. Press the ON/OFF button to turn the dehumidifier control ON. **REMOTE** will show on the display to indicate that a remote control is wired to the dehumidifier.

2. At the Model 76, press the ON button; the Model 76 will display the RH measured at the dehumidifier, and the dehumidifier blower will turn on to start sampling the air.

3. Use the ▲ or ▼ button on the Model 76 to adjust the dryness level as desired. The dryness levels are from **1** to **7**, with **1** being least dry and **7** being most dry; the recommended initial setting is **3**.

4. After three (3) minutes of sampling, the measured humidity will be compared to the setting:
   a. If the humidity is above the setting, the dehumidifier compressor turns on and **ON** flashes on the Model 76 display.
   b. If the measured humidity is below the setting, the dehumidifier blower turns off.

5. The dehumidifier will sample again every 60 minutes, or at any time if the dryness level is increased.

SINGLE ZONE WHOLE HOUSE OR STAND ALONE USING MODEL 76 EXTERNAL CONTROL

1. Press the ON/OFF button to turn the dehumidifier control ON. **EXTERNAL** will show on the display to indicate that an external control is wired to the dehumidifier.

2. At the Model 76, press the ON button; the Model 76 will display the RH measured at the dehumidifier, and the dehumidifier blower will turn on to start sampling the air.

3. Use the ▲ or ▼ button on the Model 76 to adjust the dryness level as desired. The dryness levels are from **1** to **7**, with **1** being least dry and **7** being most dry; the recommended initial setting is **3**.

4. If the RH measured by the Model 76 rises above the setting, the dehumidifier will turn on as will the HVAC blower (if wired to the HVAC system). **DEHUMIDIFYING** will appear on the dehumidifier control display to show that the Model 76 is calling for dehumidification. The dehumidifier and HVAC blower (if on) will turn off when the RH measured by the Model 76 drops 3% RH below the setting.

TWO ZONE – PRIMARY AND SECONDARY

1. Press the ON/OFF button to turn the dehumidifier control ON. Dehumidification of the Primary Zone follows the same sequence as described to the left for Single Zone, with or without a Model 76 external control installed in the Primary Zone. The dehumidifier control display will show **PRIMARY ZONE** in addition to that described to the left when sampling or dehumidifying the Primary Zone. The zone dampers are energized when sampling or dehumidifying the Primary Zone.

2. The Secondary Zone uses the humidity setting on the dehumidifier control. During Secondary Zone sampling or dehumidification, the zone dampers are de-energized and the HVAC blower (if on) stops. **SECONDARY ZONE** will show on the dehumidifier control display when the Secondary Zone is either sampling or dehumidifying. If the Primary Zone had just finished a dehumidification demand, the compressor will continue to run during Secondary Zone sampling to prevent short cycling of the compressor.

The Secondary Zone is sampled immediately after the Primary Zone has finished sampling, or if there is a call for dehumidification from the Primary Zone, immediately after the call has been satisfied. When a Model 76 external control is installed, the Secondary Zone will be sampled once per hour if there has not been a call for dehumidification from the Primary Zone. Secondary Zone sampling will also occur whenever the setting on the dehumidifier control is lowered.
The dehumidifier can activate a normally closed damper to bring in outdoor air through a fresh air intake duct. This feature can not be used when a Model 76 has been installed in a Remote Control application, and is not recommended for two-zone installations.

**NOTE:** for ventilation with 8190FF, see 8190FF Installation Instructions.

### REQUIRED COMPONENTS
- Aprilaire model 8190FF FreshFlo or 6506, normally closed damper
- 6” insulated duct for fresh air intake duct
- 24 VAC transformer (10 VA min.) for ventilation damper
- Intake hood
- 18-22 AWG wire

### OPTIONAL COMPONENT
- 8052 Outdoor Temperature Sensor

## INSTALLATION AND WIRING

### FIGURE 26 – SINGLE ZONE, ON-BOARD CONTROL VENTILATION INSTALLATION

- AIR IS PULLED FROM OUTSIDE
- NORMALLY CLOSED VENT DAMPER
- HVAC/FURNACE
- BALANCING DAMPERS

### FIGURE 27 – SINGLE ZONE, EXTERNAL CONTROL VENTILATION INSTALLATION

- AIR IS PULLED FROM OUTSIDE
- NORMALLY CLOSED VENT DAMPER
- HVAC/FURNACE

### FIGURE 28 – SINGLE ZONE WITH MODEL 8190FF INSTALLED

- AIR IS PULLED FROM OUTSIDE
- HVAC / FURNACE

### FIGURE 29 – VENTILATION WIRING

- OPTIONAL OUTDOOR TEMPERATURE SENSOR (MODEL 8052)
- 24 VAC (10 VA min) TRANSFORMER (E100V USE EXTERNAL 24V PORT)
- 6” NORMALLY CLOSED DAMPER OR 8190FF
THE DEHUMIDIFIER CAN VENTILATE IN FOUR MODES

VENT-TIMED: Ventilation occurs based only on time setting; no temperature restrictions.

VENT-AUTO-B: Ventilation prevented when outdoor temperature is below 0°F and above 100°F. Between 0°F – 20°F ventilation is only allowed during a HVAC heat call.

VENT-AUTO-C: Ventilation prevented when outdoor temperature is below 0°F and above 100°F.

VENT-AUTO-D: Ventilation prevented when outdoor temperature is below 0°F and above 90°F. Between 0°F – 40°F ventilation is only allowed during a HVAC heat call.

VENT-AUTO-B, -C, -D modes apply outdoor temperature limits and require an outdoor temperature sensor to be installed.

OUTDOOR TEMPERATURE SENSOR INSTALLATION

The Outdoor Temperature Sensor should be installed outside in a shaded location, or in the outdoor air intake duct.
DETERMINE VENTILATION REQUIREMENTS

CALCULATING AIRFLOW REQUIREMENT

1. The MINIMUM ventilation requirement is calculated using ASHRAE 62.2-2010.

ASHRAE Airflow in CFM = [House Area in Sq. Ft. x 0.01] + [(Number of Bedrooms +1) x 7.5]

NOTE: Use ‘Number of Bedrooms + 1’ or ‘Number of Occupants’, whichever is larger.

2. TABLE 1 shows the calculated airflow values to the nearest 5 CFM.

3. Record the required CFM. ________

DETERMINE FRESH AIR DELIVERY RATE

1. Measure the negative static pressure of the return system at the location where the fresh air intake duct enters the return duct or dehumidifier inlet.

2. See TABLE 2 for estimated inlet airflow in CFM, based on duct type, length and available negative pressure. Use an airflow measuring device for a more accurate airflow delivery rate.

3. Record the delivered CFM. ________

<table>
<thead>
<tr>
<th>Duct Length</th>
<th>Negative Static Pressure (&quot;w.c.) as Measured for Return Duct or Plenum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.05</td>
</tr>
<tr>
<td>Flex Pipe</td>
<td>Flex</td>
</tr>
<tr>
<td>10 ft.</td>
<td>60</td>
</tr>
<tr>
<td>20 ft.</td>
<td>55</td>
</tr>
<tr>
<td>30 ft.</td>
<td>50</td>
</tr>
</tbody>
</table>

NOTE: For the table above, 6” flex duct is laid loose with two, wide 90° bends and a fully opened damper. Rigid pipe values are based on 6” duct, two 90° elbows, and a fully open damper. In both cases, the air intake is through a metal vent hood with inlet screen. Airflow may need to be adjusted up or down for variations in duct work.

DETERMINE CYCLE TIME

1. Use the Required CFM and Delivered CFM from the above steps to determine the Cycle Time from TABLE 3.

2. The values highlighted in gray cannot be set due to the maximum 60 minute Cycle Time. A second ventilation device (i.e., bigger duct or second duct) will be required to meet ventilation needs.

<table>
<thead>
<tr>
<th>CFM Delivered</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>80</td>
<td>15</td>
<td>25</td>
<td>30</td>
<td>40</td>
<td>45</td>
<td>55</td>
<td>60</td>
<td>70</td>
<td>75</td>
</tr>
<tr>
<td>100</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>50</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>120</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>140</td>
<td>10</td>
<td>15</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>160</td>
<td>10</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>40</td>
</tr>
</tbody>
</table>
With the dehumidifier power switch on, press the ON/OFF button to turn the dehumidifier off.

Press and hold the MODE button for 3 seconds to access the installer settings menu. Press and release the MODE button repeatedly until the VENT DISABLED screen appears.

Press the \(\uparrow\) or \(\downarrow\) button to ENABLE ventilation, then press the MODE button to set Timed or Auto ventilation.

Press the \(\uparrow\) or \(\downarrow\) button to toggle between VENT TIMED, VENT AUTO-B, VENT AUTO-C and VENT AUTO-D (refer to page 20 for a description of each). Press the MODE button to select the desired ventilation method and adjust the ventilation time.

Press the \(\uparrow\) or \(\downarrow\) button to set the desired amount of ventilation time per hour from 0 to 60 minutes.

To complete, press the MODE button repeatedly until DONE appears on the display.
SEQUENCE OF OPERATION

When wired as shown in FIGURE 28, the ventilation damper will open whenever there is an HVAC heating (W), cooling (Y) or fan (Gs) call, allowing fresh air to be brought in when the HVAC blower is running (see VENTILATION WITH AN EXTERNAL CONTROL section below for exceptions). The ventilation damper will also open if the dehumidifier is operating. VENTILATING will show on the dehumidifier control when the dehumidifier is actively ventilating. When the HVAC call ends, the dehumidifier stops, or after the set amount of ventilation time has been met, the ventilation damper will be closed.

If the set amount of ventilation time has not been met before the end of the one-hour cycle, the dehumidifier will turn on the ventilation damper along with the HVAC blower to ensure the desired ventilation time is satisfied.

If the dehumidifier has been set up to operate ventilation with outdoor temperature restrictions (AUTO-B, AUTO-C or AUTO-D – refer to page 20) then ventilation will be limited as described.

DEHUMIDIFYING THE FRESH AIR

When the dehumidifier is set up for single zone and there is no external control installed, the dehumidifier will turn on its blower and measure the RH of the air entering the dehumidifier during ventilation when ducted as shown in FIGURE 26. If the relative humidity of the air entering the dehumidifier is higher than the setting, the dehumidifier compressor will turn to remove moisture.

VENTILATION WITH AN EXTERNAL CONTROL

When an external control is installed the dehumidifier will open the ventilation damper only when there is a cooling call (Y) or when the dehumidifier is operating, unless the ventilation need has not been met. If the set amount of ventilation time has not been met before the end of the one-hour cycle, the dehumidifier will turn on the ventilation damper along with the HVAC blower to ensure the desired ventilation time is satisfied.

ADJUSTING VENTILATION TIME AFTER INITIAL SET UP

1. Press the ▲ or ▼ button to access the RH adjustment screen or to turn on the backlight if using an External Control.

2. Press the MODE button to toggle to the VENT TIME setting.

3. Press the ▲ or ▼ button to adjust the ventilation time (minutes). After adjusted, press nothing else; the screen will return to home screen after three (3) seconds.
### TROUBLESHOOTING

Technical Support is available Monday through Friday, 7:00 a.m. to 5:00 p.m. CST, at (800) 334-6011. Use the guides on the following pages to identify and correct system faults. Contact Technical Support before replacing the unit or any components and for additional troubleshooting.

### DIAGNOSTIC CODES

When an error occurs, the Diagnostic Code along with **SERVICE REQUIRED** will be displayed on the control screen.

#### TABLE 4 – DIAGNOSTIC CODES

<table>
<thead>
<tr>
<th>Diagnostic Code</th>
<th>Failure Mode</th>
<th>Action</th>
<th>Reset</th>
</tr>
</thead>
</table>
| E1              | Internal Humidity or Temperature Sensor Open or Shorted | 1. Cycle power to clear error code.  
2. If error code reoccurs replace User Interface, Part No. 5445. | Cycle Power |
| E2              | High Refrigeration Pressure | 1. Verify that the fan works, the backflow damper swings freely and there is no blocked or restricted ductwork.  
2. If the fault persists, call Technical Support. | Cycle Power |
| E3              | Model 76 Remote Control Communication Loss | 1. Check connections between Model 76 and dehumidifier control board. Terminals should be fully inserted and secured in the control board and Model 76 control terminals.  
2. If connections are correct and secure, turn off the dehumidifier and remove the Model 76. Use a short section of 4-wire cable to reconnect the Model 76 to the control board. Turn the dehumidifier back on and increase the dryness level setting on the Model 76. If the dehumidifier turns on, the problem is with the wiring between the dehumidifier and control.  
3. If the dehumidifier does not turn on, call Technical Support. | Self-Correcting |
| E4              | Insufficient Capacity | 1. Check the frost sensor connection at the power board. Terminal should be fully seated on the power board pins.  
2. Remove the side access panel and verify that the sensor is secured to the suction line.  
3. If the sensor is connected and secured to the refrigeration line proceed to the next step.  
4. Reset the fault by cycling power to the dehumidifier.  
5. Turn the humidity setting down (below room/home humidity level) to make a dehumidification call.  
6. Allow the fan and compressor to run for approximately 10-15 minutes and then enter diagnostic test mode by simultaneously pressing the ▲ and MODE buttons for 3 seconds. The LCD will display the temperature measured by the internal sensor while also displaying AIR SAMPLING and ON, the humidity measured by the internal sensor while also displaying %RH and ON, and the frost sensor temperature while also displaying ON. Scroll through these values and by using the ▲ or ▼ button.  
7. Record values and call Technical Support. | Cycle Power |
| E5              | High Temperature Thermistor Failure | 1. Check the high temperature sensor connection at the power board. Terminal should be fully seated on the power board pins.  
2. Remove the side access panel and verify the sensor is not damaged and connected to the refrigeration line coming from the compressor.  
3. If the sensor is connected and secured to the refrigeration line, it may need to be replaced with Part No. 5456 – contact Technical Support to confirm. | Cycle Power |
| E6              | Low Temperature Thermistor Failure | 1. Check the low temperature sensor connection at the power board.  
2. Remove the side access panel and verify the sensor is not damaged and connected to the suction line.  
3. If the sensor is connected and secured to the refrigeration line, it may need to be replaced with Part No. 5455 – contact Technical Support to confirm. | Cycle Power |
<table>
<thead>
<tr>
<th>Diagnostic Code</th>
<th>Failure Mode</th>
<th>Action</th>
<th>Reset</th>
</tr>
</thead>
</table>
| E7              | Float Switch Open | 1. Empty the condensate pan.  
2. Check the float switch connection at the control board.  
3. If not using a float switch, verify jumper is between float switch terminals on dehumidifier control board.  
4. If the problem persists, replace the float switch. | Self-Correcting |
| E8              | Inlet Air Temperature Out of 50°F – 104°F Range, or Dew Point Below 40°F | 1. Verify all ductwork is properly sealed.  
2. If no signs of leak points, contact Technical Support. | Self-Correcting |
| E9              | Outdoor Temperature Sensor Open or Shorted | 1. Check the sensor connection at the power board.  
2. Remove the wires from the terminals and measure the resistance. A short circuit will have a resistance very close to 0 Ohms and an open circuit will have a very high resistance. The table at right can be used to approximate the resistance based on outdoor temperature.  
3. If the sensor is not reading correctly, replace the sensor, Part No. 8052. | Self-Correcting |

<table>
<thead>
<tr>
<th>Outdoor Temperature</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°F</td>
<td>84,500 Ohms</td>
</tr>
<tr>
<td>20°F</td>
<td>46,000 Ohms</td>
</tr>
<tr>
<td>40°F</td>
<td>26,000 Ohms</td>
</tr>
<tr>
<td>60°F</td>
<td>15,500 Ohms</td>
</tr>
<tr>
<td>80°F</td>
<td>9,500 Ohms</td>
</tr>
<tr>
<td>100°F</td>
<td>6,000 Ohms</td>
</tr>
<tr>
<td>Symptom</td>
<td>Possible Reason</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Dehumidifier does not turn on/run.</td>
<td>No power to unit.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Dehumidifier blower is running but with little or no airflow.</td>
<td>Pressure drop across dehumidifier is higher than 0.4”w.c. for Model E080 or 0.6”w.c. for Model E100/E100H.</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Dehumidifier blower is running but compressor is not.</td>
<td>Float switch open.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coil frosting.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Inlet air temperature is outside of the 50°F - 104°F range or the dew point is below 40°F and there is a demand for dehumidification.</td>
<td></td>
</tr>
<tr>
<td>When zoned, the dehumidifier damper does not open in INSTALLER TEST mode.</td>
<td>Incorrect damper wiring or bad connection.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>The ventilation damper does not open when the HVAC fan is active.</td>
<td>Cycle time has been met.</td>
</tr>
<tr>
<td>ODT error or outdoor air outside of ODT range.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Dehumidifier is not draining properly.</td>
<td>Drain line blocked or unit not level.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>The HVAC fan turns on unexpectedly.</td>
<td>Dehumidifier is sampling or ventilation in progress.</td>
</tr>
<tr>
<td>Dehumidifier is producing hot air.</td>
<td>Normal function.</td>
</tr>
</tbody>
</table>

**Outdoor Temperature Resistance**

<table>
<thead>
<tr>
<th>Outdoor Temperature</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°F</td>
<td>84,500 Ohms</td>
</tr>
<tr>
<td>20°F</td>
<td>46,000 Ohms</td>
</tr>
<tr>
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<td>26,000 Ohms</td>
</tr>
<tr>
<td>60°F</td>
<td>15,500 Ohms</td>
</tr>
<tr>
<td>80°F</td>
<td>9,500 Ohms</td>
</tr>
<tr>
<td>100°F</td>
<td>6,000 Ohms</td>
</tr>
</tbody>
</table>
**SERVICE PARTS**

<table>
<thead>
<tr>
<th>No.</th>
<th>Part Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EZK Filter, 13.5&quot; x 11.875&quot; x 0.875&quot;</td>
<td>5881</td>
</tr>
<tr>
<td>2</td>
<td>Internal Control Board, Deh</td>
<td>5444</td>
</tr>
<tr>
<td>3</td>
<td>User Interface Assembly, Deh</td>
<td>5445</td>
</tr>
<tr>
<td>4</td>
<td>Wiring Access Door, AA Deh</td>
<td>5446</td>
</tr>
<tr>
<td>5</td>
<td>Hole Cover, Ul Ctrl, Deh</td>
<td>5447</td>
</tr>
<tr>
<td>6</td>
<td>Door, Filter Access, AA Deh</td>
<td>5882</td>
</tr>
<tr>
<td>7</td>
<td>Outlet Duct Panel, Deh</td>
<td>5449</td>
</tr>
<tr>
<td>8</td>
<td>Backflow Damper, 10&quot;, Deh</td>
<td>5450</td>
</tr>
<tr>
<td>9</td>
<td>Inlet Duct Panel, AA Deh</td>
<td>5451</td>
</tr>
<tr>
<td>10</td>
<td>Cover, Outlet, AA Deh</td>
<td>5452</td>
</tr>
<tr>
<td>11</td>
<td>Fan, 80pt Deh, with 6MFD Capacitor</td>
<td>5883</td>
</tr>
<tr>
<td></td>
<td>Fan, 100pt Deh, with 12MFD Capacitor</td>
<td>5886</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Part Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Wire Harness, Power, Deh</td>
<td>5884</td>
</tr>
<tr>
<td></td>
<td>Wire Harness, Power, Deh w/ Vent*</td>
<td>5888</td>
</tr>
<tr>
<td>13</td>
<td>Sensor, Low Temperature, Deh</td>
<td>5455</td>
</tr>
<tr>
<td>14</td>
<td>Sensor, High Temperature, Deh</td>
<td>5456</td>
</tr>
<tr>
<td>15</td>
<td>Leveling Foot, Deh</td>
<td>5457</td>
</tr>
<tr>
<td>16</td>
<td>Capacitor, Run, 50µF</td>
<td>5594</td>
</tr>
<tr>
<td>17</td>
<td>Capacitor, 6MFD, 250VAC, 80pt Deh</td>
<td>5582</td>
</tr>
<tr>
<td></td>
<td>Capacitor, 12MFD, 450VAC, 100pt Deh</td>
<td>5468</td>
</tr>
<tr>
<td>18</td>
<td>Drain Insert</td>
<td>5885</td>
</tr>
<tr>
<td>19</td>
<td>Drain Tube + Fitting</td>
<td>5692</td>
</tr>
</tbody>
</table>

**NOT SHOWN**

Wire Harness, 24V Deh w/ Vent* 5914

*Compatible with Model E100V and units equipped with the 8190FF FreshFlo vent kit.*