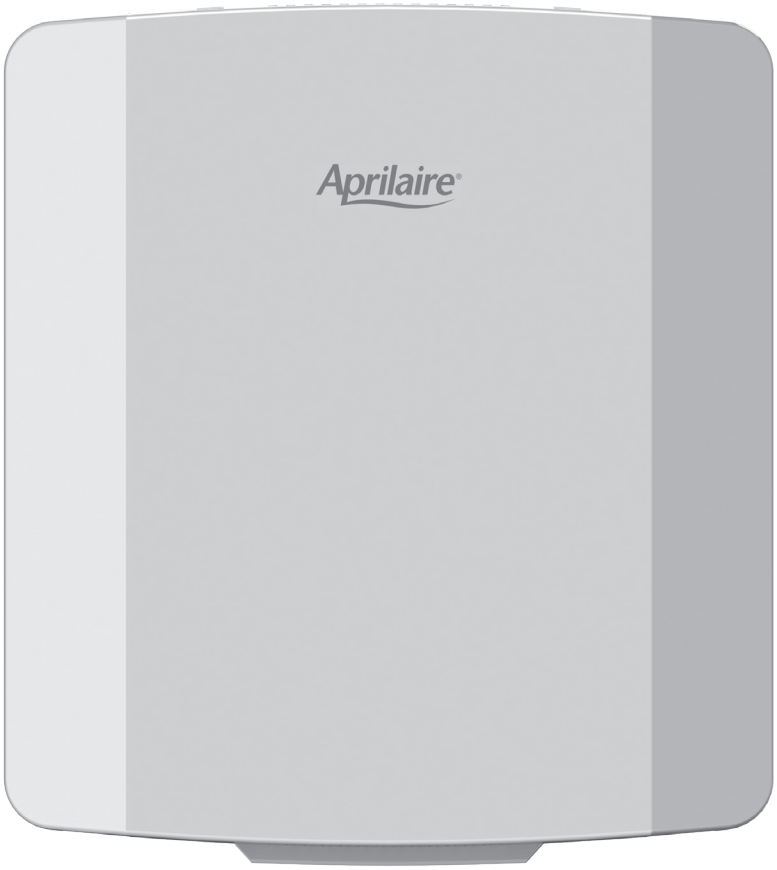
# Model 6203 & 6202 Zoned Comfort Control®

## Safety & Installation Instructions




READ AND SAVE THESE INSTRUCTIONS

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## SAFETY INSTRUCTIONS

Read this installation manual before beginning installation of the Aprilaire® Zoned Comfort Control® system. For questions call Aprilaire customer support at (800) 334-6011 or visit **AprilairePartners.com**.

### ⚠ WARNING

1. 120 Volts may cause serious injury from electrical shock. Leave power disconnected until installation is complete.
2. The zone panel is designed for indoor use only. Do not expose any of the components to moisture.

### ⚠ CAUTION

1. Turn off the system power before removing or installing any wires into the terminals of any component on the system. Wiring with a live circuit can lead to electrical shorts that can damage components.
2. Installation must be done in accordance with all applicable codes.
3. Installer should touch a grounded metal object before handling the zone panel. This will prevent any static discharge that may cause damage.
4. A zone panel may not control temperature properly unless the heating and cooling system is properly sized and balanced.
5. Insufficient air flow or excessive temperatures through the heating and cooling system could result in equipment damage. Refer to the manufacturer's recommendations for minimum safe airflow and temperature requirements.
6. Do not mount the zone panel on any exterior wall or equipment supply ductwork.
7. Do not install the zone panel where temperatures exceed 158°F (70°C) or are below 32°F (0°C), non-condensing.
8. Improper system installation could cause water damage from frozen pipes. Check system operation after installation.

# SPECIFICATIONS

### INPUT RATINGS

**Voltage:** 18-30VAC 50/60 Hz

### MAXIMUM CURRENT

**Damper output per zone (fused):** 18VA at 158°F, 30VA at 90°F
**Zone panel and thermostats (fused):** 18VA at 158°F, 30VA at 90°F
**Zone panel consumption:** 4VA max
**Note:** Use 18 or 20 AWG solid (**non-stranded**) wire

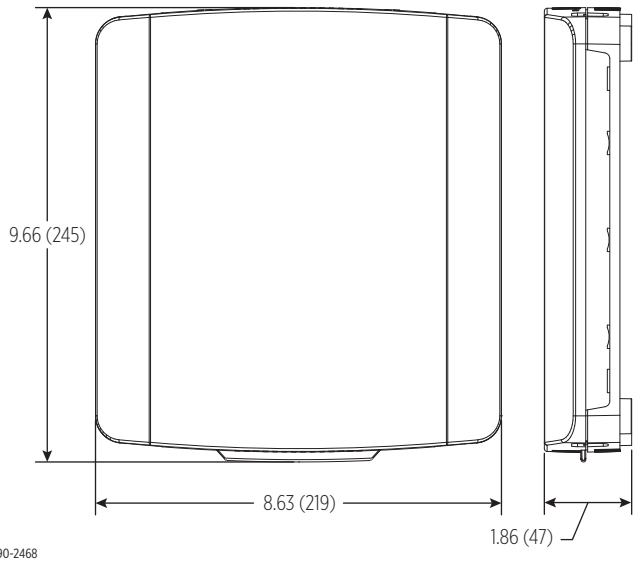
### ENVIRONMENT

**Temperature (operating):** 32°F – 158°F
**Temperature (shipping):** -40°F – 180°F
**Humidity:** 5% – 90%, non-condensing

### DIMENSIONS

See **FIGURE 1**.

**FIGURE 1** – ZONE PANEL DIMENSIONS IN INCHES (mm)




# APPLICATION & ACCESSORIES

### APPLICATION

The Model 6203 and 6202 Zone Panels are for conventional heat/cool applications. The Model 6203 is for 3-zone installations and the 6202 is for 2-zone installations. The features include:

- 1 heating and 1 cooling stage
- Equipment protection
- Vacation mode – Zone 1 thermostat controls all zones

### ACCESSORIES

- **Discharge Air Temperature Sensor (DAT):** Model 8052 (included)

# ZONE PANEL LAYOUT

## TERMINALS

1. **HVAC** – HVAC connection
2. **ZONE 1 THERMOSTAT** – Thermostat connection
3. **ZONE 2 THERMOSTAT** – Thermostat connection
4. **ZONE 3 THERMOSTAT (6203 only)** – Thermostat connection
5. **DAMPER 1** – Zone 1 damper connection
6. **DAMPER 2** – Zone 2 damper connection
7. **DAMPER 3 (6203 only)** – Zone 3 damper connection
8. **SENSOR DAT** (Discharge Air Temperature)
9. **POWER** – Zone panel, thermostat and damper power

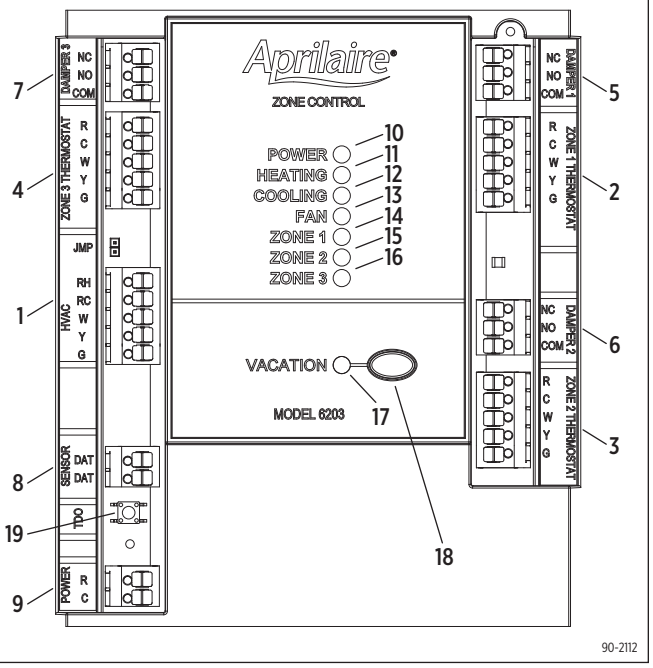
## LEDs

10. **POWER** – Green: 24VAC is present. Flashing: TDO button is pressed.
11. **HEATING** – Green: Heating is active. Flashing: DAT high temperature limit reached.
12. **COOLING** – Green: Cooling is active. Flashing: DAT low temperature limit reached.
13. **FAN** – Green: Fan output is active.
14. **ZONE 1** – Green: Damper is open. Red: Damper is closed.
15. **ZONE 2** – Green: Damper is open. Red: Damper is closed.
16. **ZONE 3 (6203 only)** – Green: Damper is open. Red: Damper is closed.
17. **VACATION** – Green: Vacation mode is enabled.

## BUTTONS

18. **VACATION** – Used to enable/disable Vacation mode. In Vacation mode all zones will be controlled by the thermostat in Zone 1.
19. **TDO** (Time Delay Override) – Accelerates timing (6 seconds = 1 minute) used to speed up minimum on and off timers.

**FIGURE 2** – ZONE PANEL LAYOUT



# INSTALLATION

## MOUNTING

1. Separate the zone panel cover from the base. See **FIGURE 3**.
2. Use the base as a template to drill mounting holes. See **FIGURE 4** for mounting hole locations.
3. Attach the base to an interior wall, stud or return duct.

**FIGURE 3**

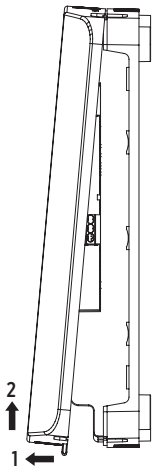
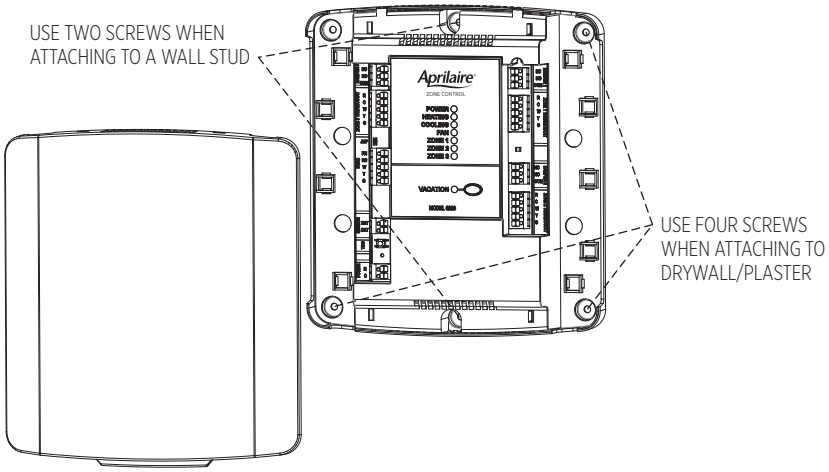



**FIGURE 4** – MOUNTING HOLE LOCATIONS

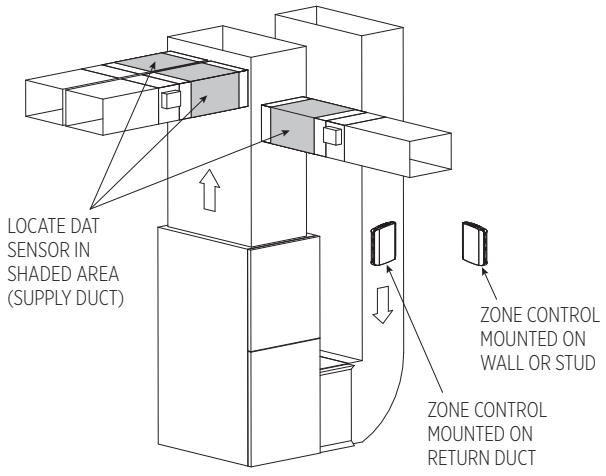



## INSTALLATION LOCATION RECOMMENDATIONS

1. Mount the zone panel near the HVAC equipment. Locate the panel on an interior wall, stud or return duct. See **FIGURE 5**.
2. Locate the Discharge Air Temperature (DAT) in the supply trunk, downstream of the heat exchanger and cooling coils, and before the zone dampers (refer to the shaded areas of **FIGURE 5**). **Note:** Do not mount the sensor in direct line-of-sight of the heat exchanger, cooling coils or UV lights as this may cause the sensor to report false temperature readings. Do not route wires along 120VAC lines.
3. Before wiring the sensor to the control panel, measure the resistance across the sensor. The resistance corresponds (approximately) to the sensed temperature according to the following table:

| **Temperature (°F)** | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|---|---|---|---|---|---|---|---|---|
| **Resistance (kΩ)** | 34.6 | 26.1 | 19.9 | 15.3 | 11.9 | 9.4 | 7.4 | 5.9 |

**FIGURE 5** – LOCATION RECOMMENDATIONS



# WIRING

## ⚠ WARNING

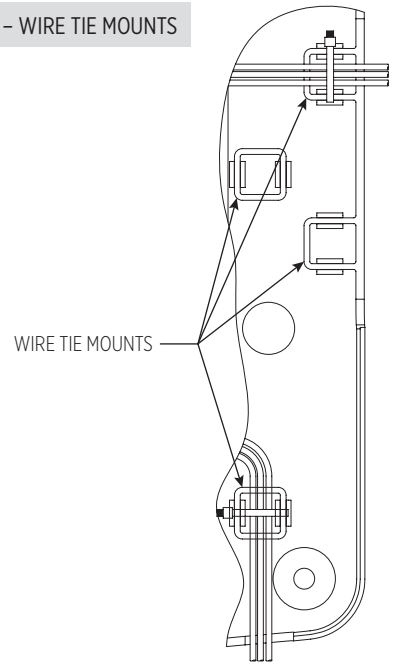
120 volts may cause serious injury from electrical shock. Sudden operation may cause serious injury from moving parts. Leave power disconnected until installation is complete.

Follow these steps for all system connections. Wiring will vary depending on equipment.

Wiring of the zone panel must comply with applicable codes, ordinances and regulations.

- Use only 18 or 20 gauge solid (**non-stranded**) wire.
- Strip off 7/16" of insulation from the wire.
- Push wire into the terminal of the zone panel.
- To release the wire, press down on the top of the terminal and pull the wire out.
- The zone panel supports multiple options to route and anchor wires to the housing. See **FIGURE 6**.

**FIGURE 6** – WIRE TIE MOUNTS



## SELECT AND WIRE THE TRANSFORMER TO THE CONTROL PANEL

1. **Note:** The HVAC equipment transformer cannot be used for power. A separate transformer should be used to power the zone panel, thermostats and dampers.
2. Wire 24VAC from transformer to the POWER, R and C terminals (see **FIGURE 7**).
3. Sizing of transformer to accommodate the number of dampers:
   - **a.** Select your damper type.

     **OPTION 1: Normally Open/Power Close Dampers (2-Wire)**

     - **i.** Add up all the zone dampers that are in the system.
     - **ii.** Subtract the number of dampers in the zone with the least number of dampers. This is the greatest number of dampers that could be energized at one time.
     - **iii.** Multiply this number by 10 to determine the damper VA requirement. Add an additional 10VA for the zone panel and thermostats.

       **Example:** If you have a 3-zone system, and there are two dampers per zone, then the total number of dampers that could be energized at one time is,
       **6 – 2 = 4 dampers**
       **4 dampers x 10VA per damper + 10VA for zone panel and thermostats = 50VA required**

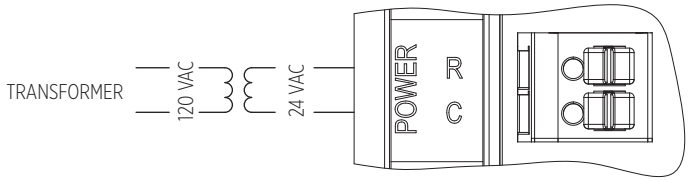
     **OPTION 2: Power Open/Power Close Dampers (3-Wire)**

     - **i.** Add up all the zone dampers that are in the system.
     - **ii.** Multiply this number by 2.5 to determine the transformer size. Add an additional 10VA for the zone panel and thermostats.

       **Example:** If you have a 3-zone system, and there are two dampers per zone, then the total number of dampers that could be energized at one time is,
       **6 dampers x 2.5VA per damper + 10VA for zone panel and thermostats = 25VA required**

   - **b.** Select a transformer that meets or exceeds the value calculated.

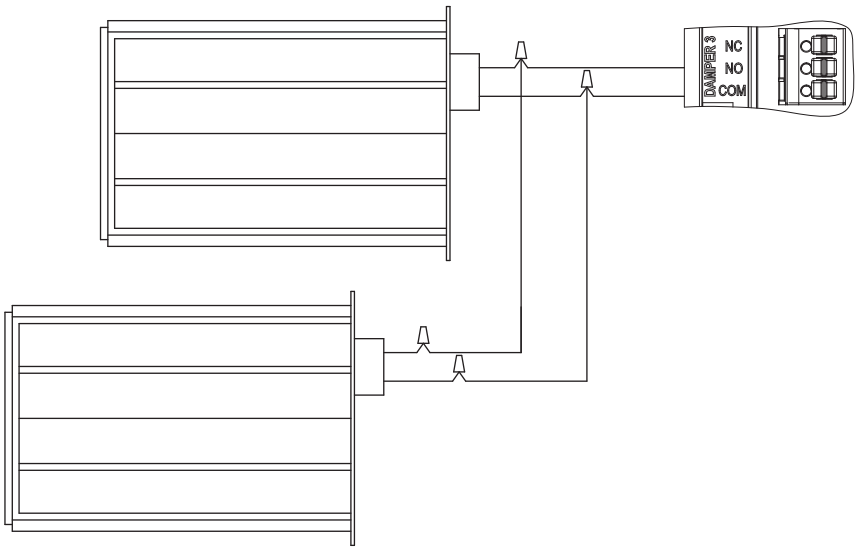
**FIGURE 7** – TRANSFORMER



## ZONE DAMPER WIRING

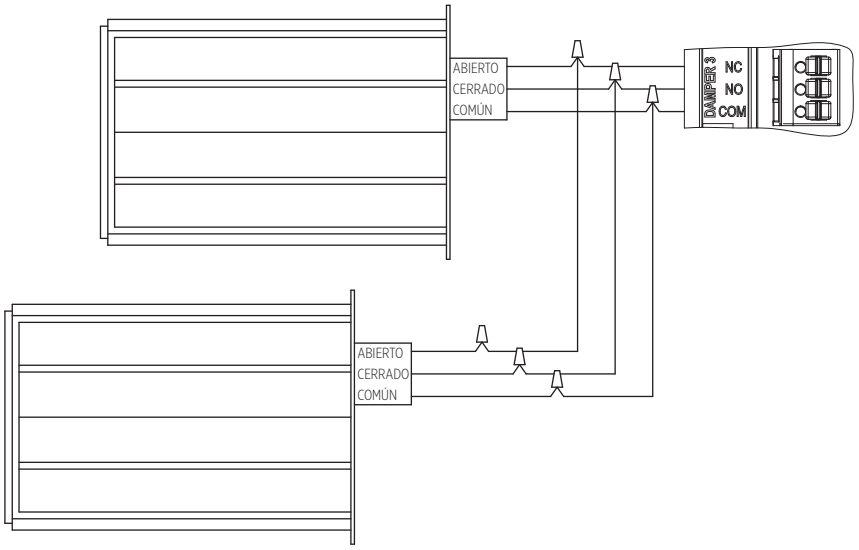
- Run 2-conductor thermostat wire for spring return dampers (normally open or normally closed).
- Run 3-conductor thermostat wire for power open/power close dampers.
- Multiple dampers for the same zone can be wired in parallel as shown in **FIGURES 8 & 9**.
- Wire the dampers to the zone panel:
  - **NC** – This terminal is used to power open a normally closed damper. For power open and power close dampers this terminal is used to power open the damper.
  - **NO** – This terminal is used to power close a normally open damper. For power open and power close dampers this terminal is used to power close the damper.
  - **COM** – This terminal provides a common connection for the NC and NO terminals.

**FIGURE 8** – NORMALLY OPEN / POWER CLOSE DAMPERS




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**FIGURE 9** – POWER OPEN / POWER CLOSE DAMPERS

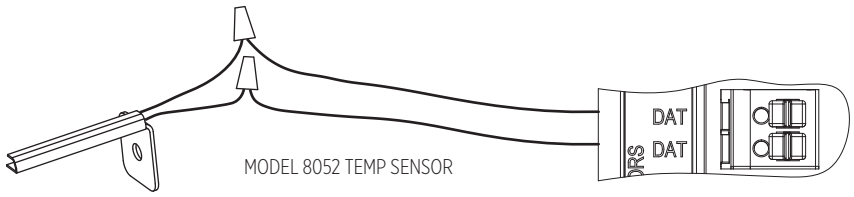



90-2154

## DISCHARGE AIR TEMPERATURE SENSOR (INCLUDED)

- Wire the discharge air temperature sensor Model 8052 to the "DAT" terminals as shown. See **FIGURE 10**.
- Maximum distance of the sensor from the zone panel is 300 feet.
- Do not wire along 120VAC lines.
- Refer to **FIGURE 5** on page 5 for the proper mounting location of the discharge air temperature sensor.

**FIGURE 10** – DISCHARGE AIR TEMPERATURE SENSOR




## THERMOSTAT TERMINAL DEFINITIONS

**R** – 24VAC power to thermostat

**C** – 24VAC power to thermostat

**W** – Heating

**Y** – Cooling

**G** – Fan

**NOTE:**

Heat/cool thermostats must be used for all zones.

## HVAC TERMINAL DEFINITIONS

**RH** – 24VAC from heating equipment

**RC** – 24VAC from cooling equipment

**W** – Heating

**Y** – Cooling

**G** – Fan

**NOTE:**

For two transformer systems, remove the jumper next to the **RH** and **RC** terminals labeled **JMP**.

## FURNACE AND A/C

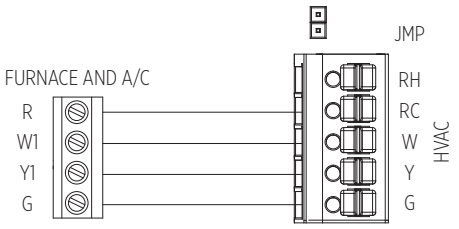
### HVAC TERMINAL DEFINITIONS

**Y1** – First stage cooling

**W1** – First stage heating

**G** – Fan

**FIGURE 11** – FURNACE AND A/C




## BOILER AND A/C

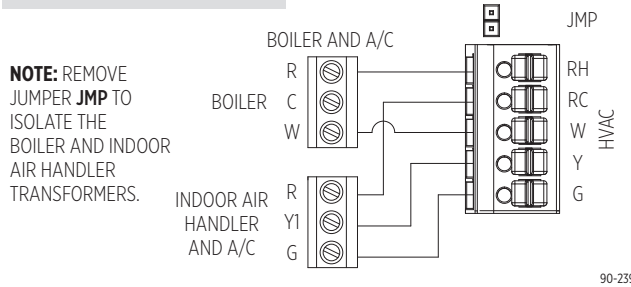
### HVAC TERMINAL DEFINITIONS

**Y1** – First stage cooling

**W1** – First stage boiler heat

**G** – Fan

**FIGURE 12** – BOILER AND A/C



# SEQUENCE OF OPERATION

The 6203/6202 Zone Panel is for single stage conventional heat/cool applications. The zone panel is a heat call priority system with automatic heating/cooling changeover after 20 minutes of operation. If two opposing (heating/cooling) thermostat calls exist while the system is idle, the heating call will be satisfied first. A heat/cool thermostat is required in each zone.

Note that immediately after the board is powered, there is a four minute minimum off delay where only the fan output will respond.

## HEAT/COOL CHANGEOVER

When a call for heating/cooling exists and an opposing call is made from another zone, a changeover time limit of 20 minutes begins at the time that the opposing call is made. If the original call is not satisfied within that 20-minute time period, the call will be interrupted, and the zone panel will turn the equipment off and complete the normal fan purge cycle and minimum equipment off time. The opposing call will then be answered. After 20 minutes, if the original call still exists, the opposing call will be interrupted and the original call can once again be recognized.

## DISCHARGE AIR TEMPERATURE (DAT) SENSOR HIGH/LOW TEMPERATURE LIMIT

The high/low temperature limits are designed to prevent the heat exchanger from overheating or the cooling coil from freezing. An 8052 Sensor mounted in the supply duct senses the discharge air temperature and will interrupt the heating/cooling equipment before overheating/freezing occurs.

When the discharge air temperature reaches 160°F or 40°F the zone panel will interrupt the heating/cooling call. When the interrupt occurs the zone panel ends the heating/cooling call and energizes the fan terminal (if not already energized). The Heating/Cooling LED on the zone panel will flash during a high/low limit temperature interrupt. Once the temperature drops/rises 10°F, the high/low temperature interrupt will end and the heating/cooling call to the equipment can resume.

## VACATION MODE

The Vacation mode button allows the homeowner to switch from normal operation to Vacation mode. When Vacation mode is enabled the thermostat in Zone 1 becomes the only zone from which a call for heating or cooling is recognized. Additionally, when in Vacation mode, all dampers remain in the open position. This feature allows the homeowner to create a setback at a single thermostat and control the whole home based on that thermostat. The Vacation LED will illuminate when Vacation mode is enabled.

## FAN OPERATION

A call for Fan from any zone will initiate the G equipment output terminal. The dampers for all zones not calling for a continuous fan will be closed during the fan call.

## HEATING OPERATION

When a thermostat makes a call to the zone panel for heating, the zone panel will initiate a heating call to the equipment and close the damper for all zones that are not calling for heat. Following a 2-minute minimum on time, the heating call will end when (1) all zones stop calling for heating, (2) the call has exceeded the 20 minute heat/cool changeover time limit while a cooling call exists or (3) the call is interrupted because the discharge air temperature sensor reaches 160°F. When the heating call ends the dampers will hold their position for 3-1/2 minutes before completing the purge. During purge the zone panel will control the fan call to the equipment based on the thermostat inputs. When a heating call ends, a minimum off time delay of 4 minutes must elapse before another heating/cooling call can begin.

## COOLING OPERATION

When a thermostat makes a call to the zone panel for cooling, the zone panel will initiate a cooling call to the equipment and close the damper for all zones that are not calling for cooling. Following a 4-minute minimum on time, the cooling call will end when (1) all zones stop calling for cooling, (2) the call has exceeded the 20 minute heating/cooling changeover time limit while a heat call exists or (3) the call is interrupted because the discharge air temperature sensor reaches 40°F. When the cooling call ends, the dampers will hold their position for 3-1/2 minutes before completing the purge. During purge the zone panel will control the fan call to the equipment based on the thermostat inputs. When a cooling call ends, a minimum off time delay of 4 minutes must elapse before another heating/cooling call can begin.

## TIME DELAY OVERRIDE

A Time Delay Override (TDO) button is available on the zone panel to speed up the internal timer for system checkout.

# LIMITED WARRANTY

Your Research Products Corporation Aprilaire® Zoned Comfort Control® is expressly warranted for five (5) years from date of installation to be free from defects in materials or workmanship. Any modifications to the product voids the warranty.

Research Products Corporation's exclusive obligation under this warranty shall be to supply, without charge, a replacement for any component which is found to be defective within such five (5) year period and which is returned not later than thirty (30) days after said five (5) year period by you to either your original supplier or to Research Products Corporation, Madison, Wisconsin 53701, together with the model number and installation date of the zone control.

THIS WARRANTY SHALL NOT OBLIGATE RESEARCH PRODUCTS CORPORATION FOR ANY LABOR COSTS AND SHALL NOT APPLY TO DEFECTS IN WORKMANSHIP OR MATERIALS FURNISHED BY YOUR INSTALLER AS CONTRASTED TO DEFECTS IN THE ZONE CONTROL ITSELF.

IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE AFORESAID FIVE YEAR PERIOD. RESEARCH PRODUCTS CORPORATION'S LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, OTHER THAN DAMAGES FOR PERSONAL INJURIES, RESULTING FROM ANY BREACH OF THE AFORESAID IMPLIED WARRANTIES OR THE ABOVE LIMITED WARRANTY IS EXPRESSLY EXCLUDED. THIS LIMITED WARRANTY IS VOID IF DEFECTS(S) RESULT FROM FAILURE TO HAVE THIS UNIT INSTALLED BY A QUALIFIED HEATING AND AIR CONDITIONING CONTRACTOR. IF THE LIMITED WARRANTY IS VOID DUE TO FAILURE TO USE A QUALIFIED CONTRACTOR, ALL DISCLAIMERS OF IMPLIED WARRANTIES SHALL BE EFFECTIVE UPON INSTALLATION.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages so the above exclusion or limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

This equipment if installed in strict accordance with the manufacturer's instructions, complies with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC Rules.

## WARRANTY REGISTRATION

Visit us online at **www.aprilaire.com** to register your Aprilaire product. If you do not have online access, please mail a postcard with your name, address, phone number, email address, product purchased, model number, date of purchase, and dealer name and address to: Research Products Corporation, P.O. Box 1467, Madison, WI 53701.

**Your warranty registration information will not be sold or shared outside of this company.**

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