ZONEBB3Z(AC/HP)01

3-ZONE CONTROL SYSTEM

Quick Reference Guide



ZONEBB3ZAC01
1 Heat / 1 Cool



ZONEBB3ZHP01
3 Heat / 2 Cool HP

INTRODUCTION

The Bryant 3-Zone Control system brings the possibility of total comfort control to the occupants by providing the right amount of heating or cooling for up to 3 distinct spaces or zones within a home or business. Each zone has independent temperature settings controlled by a conventional thermostat or Wi-Fi® based thermostats and up to 5 dampers per zone.

The Quick Reference Guide will provide a simplified description on installing the 3-Zone Control System. Please reference the ***Installation and Start-Up Instructions*** included in the 3-Zone Controller packaging for the complete design and installation information on the 3-Zone System.

PRODUCT FEATURES AND BENEFITS

- Duct Temperature Optimizer - Offers maximum equipment protection to help ensure long life.
- Wi-Fi® Thermostat compatibility - Matches the right thermostat to the homeowner's comfort and lifestyle.
- Diagnostic LEDs - Intelligent system diagnostics to let homeowners know if there is a problem with their system.
- Emergency Heat Switch - Allows manual override for emergency heat strip operation when utilizing a heat pump.
- Max Cycle Rate - Allows 4 equipment cycles per hr (cph) providing maximum equipment protection.
- Selection Jumpers - Designed for easy configuration
- Additional Options
  - Timeguard override
  - Compressor protection
  - Modulating damper control in emergency situations
  - Damper fuse protection
  - High and low temperature limits
  - Auto changeover from any zone
  - RH and RC for voltage isolation
  - Bypass setup routine
  - Staging time for energy savings
  - Automatic checkout with installer mode
  - Override zoning switch
  - Timer override for serviceability

COMPONENTS NEEDED

3-Zone Control Panel

- Separate transformer is not needed to provide power
- Designed so that wires can enter from behind, above, or below
- Each system controller also includes a duct temperature sensor

24v or Wi-Fi® Thermostats

- Advanced energy savings algorithms
- Remote access



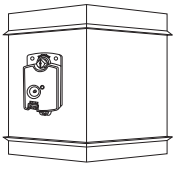
TSTWHA01
Côr 7C
Thermostat



T6-WEM01-A
Housewise™ Thermostat

Dampers (8-in. - 24-in.)

- Up to five dampers may be used in each zone by electrically connecting them in parallel
- By-pass damper available to prevent static pressure buildup



A05252
Rectangular Damper



A05251
Round Damper



By-Pass



Leaving Air Temperature (LAT) Sensor



Slip-In Damper

Fig. 1 - Damper Types

NOTE: Thermostats and Dampers are sold separately.

Wi-Fi® is a registered trademark of the Wi-Fi Alliance Corporation

COMPONENT LOCATION AND WIRING CONSIDERATIONS

Locating Bryant 3-Zone System

All wiring is connected back to the Bryant 3-Zone System. Select a location near the furnace or fan coil where wiring from each thermostat, each damper actuator, and the equipment itself can come together easily.

The Bryant 3-Zone System is approved for indoor use only and should never be installed with any of its components exposed to the elements. It may be installed in any area where the temperature remains between 32° and 158°, and there is no condensation. The cover must be installed to prevent damage from other sources. Do not locate where it will be accessible to children. Remember that wiring access is likely the most important consideration.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Turn off unit before routing control wiring or any service operation. Remember, there may be more than one power supply to unit.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage.

To prevent possible damage to Bryant 3-Zone System, do not mount control on plenum, duct work, or flush against furnace.

WIRING CONSIDERATIONS

- All wiring in the Bryant 3-Zone system may be unshielded
- Ordinary thermostat wire is ideal
- Use 22 gage or larger for normal wiring
- Lengths over 100 ft should use 20 gage or larger wire
- Each damper actuator required 3 conductors
- The connection to thermostat and equipment (furnace or fan coil) could require as many as 8 conductors for a multi-state installation
- The *Leaving Air Temperature (LAT)* and *Heat Pump Temperature (HPT)*-(used with heat pumps only) sensors require 2 conductors each
- Cables with excess conductors are acceptable

Step 1 — Mounting the Bryant 3-Zone System

The Bryant 3-Zone System can be mounted in either vertical or horizontal position near the HVAC system inside the home. It is designed so that wires can enter it from behind, above, or below. Plan wire routing before mounting.



Fig. 2 - Mounting the System

1. Remove the front cover from the base and use the base as a template to mark drilling locations on the wall, stud , or roof truss.
2. Mount using 4 screws (and wall anchors) provided. (See Fig. 2.)
3. Level for appearance and tighten screws.

Step 2 — Install Thermostats in each desired Zone Location

1. Install each thermostat according to the manufacturer's instructions in their designated Zone location.
2. Connect the thermostats wires to their respective Zone designation on the right side of the the 3-Zone Panels. (See Fig. 3).

Step 3 — Install Zone Dampers

Each damper has 3 connections: **Close (CLS), Open (OPN),** and **Common (COM).** Find the connection points along the lower left side of the 3-Zone Control. Suggested colors are CLS = RED; OPN = GREEN, COM = WHITE. Field label and make the connections at the dampers and at the 3-Zone Control. Be careful not to cross zone numbers.

If duct work required multiple dampers for a single zone, up to 5 dampers may be wired in *parallel* and may be installed in any position.

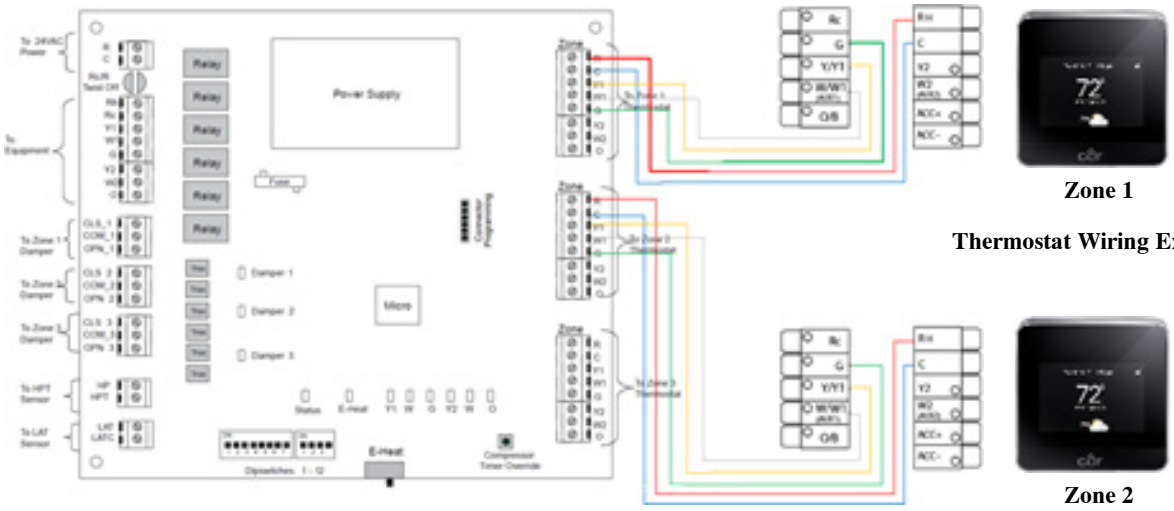


Fig. 3 - Wiring Diagram for Installation of Thermostats

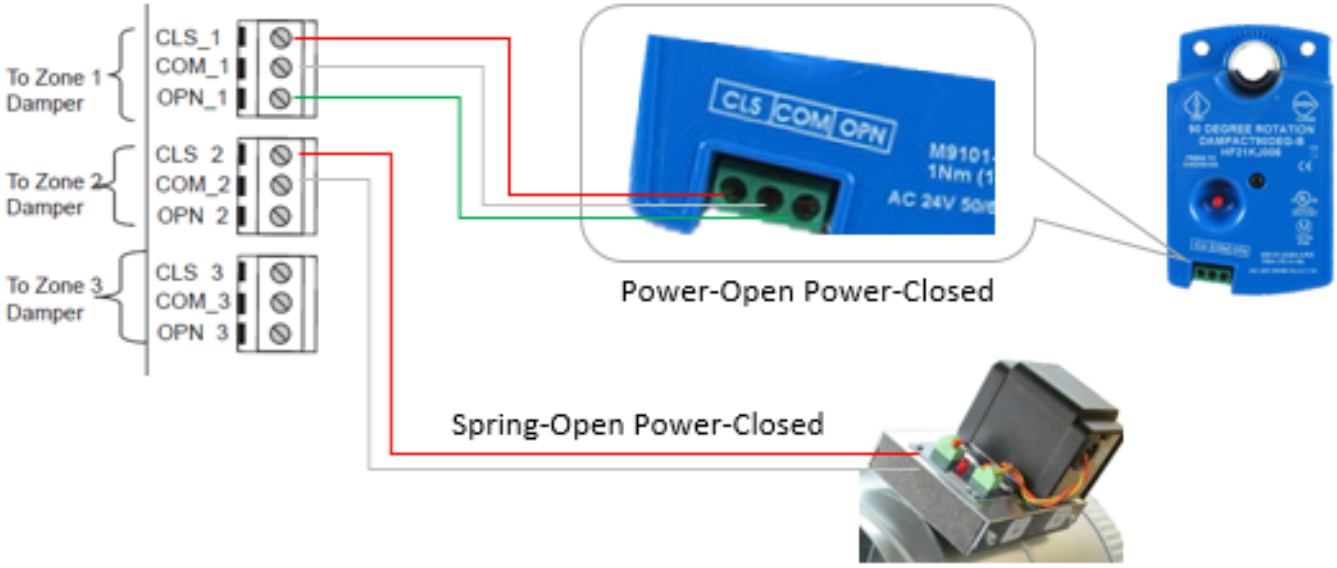


Fig. 4 - Installing Dampers

Step 4 — Install Barometric Bypass Damper

The barometric bypass damper is a critical part of Bryant 3-Zone System for controlling noise at minimum airflow. A barometric bypass should be installed unless the duct work and indoor unit have been sized for use without a bypass. When a direct bypass (outlet air fed back directly into the return) is used, bypassing decreases entering air temperature in cooling and increases it in heating. Excessive bypassing will lead to limit trips, either through the LAT/HPT sensor or the equipment internal limits.

Step 5 — Install Leaving Air Temperature (LAT) Sensor / Heat Pump Temperature (HPT) Sensor (optional)

The Leaving Air Temperature (LAT) sensor is used to detect a cooling overload condition and is connected to the LAT and LATC terminals. Polarity does not matter. Locate LAT sensor in main supply trunk after heating and cooling coil and before bypass damper and first branch. Cycling on internal equipment limits is to be avoided because it over stresses and can shorten the life of the equipment. The LAT limit setting should be selected to trip below the equipment limit.

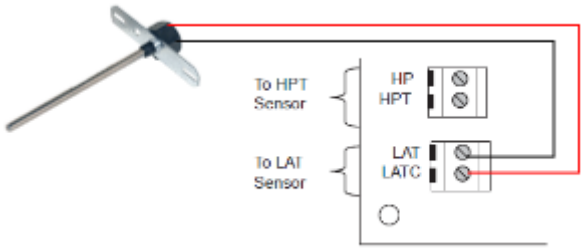


Fig. 5 - Leaving Air Temperature (LAT) Sensor / Heat Pump Temperature (TPT) Sensor optional

The HPT sensor is used with ZONEBB3ZHP01 to detect a cooling overload condition and is connected to the HPT and HPTC terminals. The HPT sensor will also be monitored in heating to detect a heating overload condition at the coil with a shutdown temperature of 115°F. It can be installed through the wall of the fan coil or may be located entirely inside the fan coil near the blower inlet being careful that it does not interfere with the blower wheel. If the HPT sensor is not used, the 10K ohm resistor attached to the two HPT terminals on the board must be left in place.

NOTE: ZONEBB3ZAC01 model does not have HPT connector.



Fig. 6 - Leaving Air Temperature (LAT) Sensor

Please refer to **Limit Temperature Levels and Actions Table** in the Installation and Start-Up Instructions for additional information on the response of the system to LAT/HPT sensors.

Step 6 — Connect the Power Supply

Optional: Use a dedicated 24 VAC, 40 VA, 60 Hz isolated transformer (not included).

Otherwise, if the cooling and heating systems have separate transformers, twist off the **Rc**/**Rh** jumper using a pair of long nosed pliers. Then connect the R of the cooling transformer to Rc, the R of the heating transformer to Rh and the common of both transformers to C. Connect a jumper wire between Rz and Rc. Rc powers G,Y, and O outputs. Rh power W outputs.

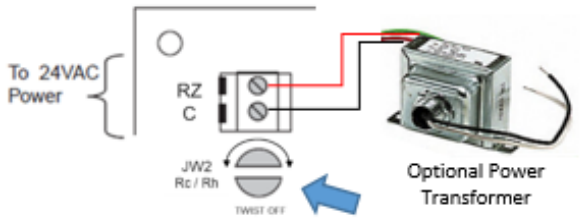


Fig. 7 - Connecting the Power Supply

Step 7 — Wire the HVAC Equipment

The descriptions below and Table 1 will help you choose the connect wiring diagram for your system. Table 1 also shows the proper setting of dipswitches 9 and 10 for each diagram.

There are 8 dipswitch settings on the AC zone control and an additional 4 dipswitch on the HP zone controls board. Table 1 summarizes their function and available settings.

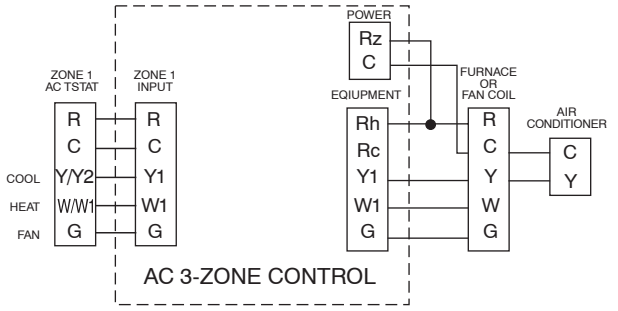


Fig. 8 - Dip Switches

Table 1 – Dipswitch Settings

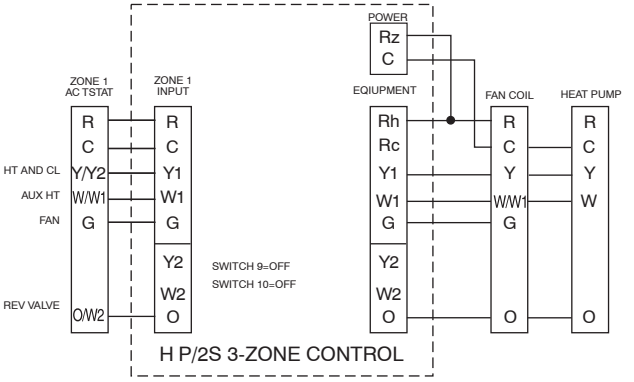
<table>
<tr><th>Dipswitch Position</th><th>Operation Description</th><th>Default (OFF)</th><th colspan="3">Optional Settings</th></tr>
<tr><td>1</td><td>Auto changeover time between heating and cooling or vice versa</td><td>Auto changeover time ENABLED (OFF)</td><td colspan="3">Auto changeover time DISABLED</td></tr>
<tr><td>2</td><td>Together with dipswitch 3, determines chanegover time</td><td>20 minutes auto changeover time (OFF)</td><td colspan="3">30 minutes auto changeover time (ON)</td></tr>
<tr><td>3</td><td>Multiplier for the modified time set on dip-switch 2</td><td>1.0 multiplier (OFF)</td><td colspan="3">0.5 multiplier (ON)</td></tr>
<tr><td>4</td><td>Installer Test Mode used to check system operation</td><td>Normal operation (OFF)</td><td colspan="3">Installer Test Mode ENABLED (ON)</td></tr>
<tr><td>5</td><td>Disables zoning operation with all dampers open and Zone 1 thermostat as controller</td><td>Zoning Operation ENABLED (OFF)</td><td colspan="3">Zoning Operation DISABLED (ON)</td></tr>
<tr><td>6</td><td>Setting G (Fan) to energize with W</td><td>W NOT energized with G (OFF)</td><td colspan="3">W energized with G (ON)</td></tr>
<tr><td>7</td><td rowspan="2">Sets Leaving air Temperature (LAT) limit temperature (HP/2 Stage control only)</td><td rowspan="2">145°F (OFF)</td><td>(OFF)</td><td>160°F (ON)</td><td rowspan="2">175°F (ON)</td></tr>
<tr><td>8</td><td>130°F (ON)</td><td>(OFF)</td></tr>
<tr><td>9</td><td>Designated Zoning Controller connection to heat pump (HP) or an air conditioner (AC)</td><td rowspan="2">1 or 2 Speed HP / 1 Stage Aux. Heat (OFF)</td><td rowspan="2">1 or 2 Speed AC / 1 or 2 Stage Heat[1] (ON)</td><td rowspan="2">1 Speed HP / 1 Stage Aux Heat[2]</td><td>(OFF)</td></tr>
<tr><td>10</td><td>Designates the type of thermostat used with the Zoning Controller (HP or AC)</td><td>(ON)</td></tr>
<tr><td>11</td><td>Disable over/under temperature protection for the equipment in emergency situations</td><td>LAT and HPT Safety Protection ENABLED (OFF)</td><td colspan="3">LAT and HPT Safety Protection DISABLED (ON)</td></tr>
<tr><td>12</td><td>Determine the Reversing Valve is energized for cooling (O function) or heating (B function)</td><td>Reversing Valve energized on COOLING (OFF)</td><td colspan="3">Reversing Valve energized on HEATING (ON)</td></tr>
</table>

[1] For 2 stage heating, the stat may be a 2 stage heat AC stat or a HP stat converted to AC.
[2] Uses an AC stat with 2 stage heating instead of a HP stat.



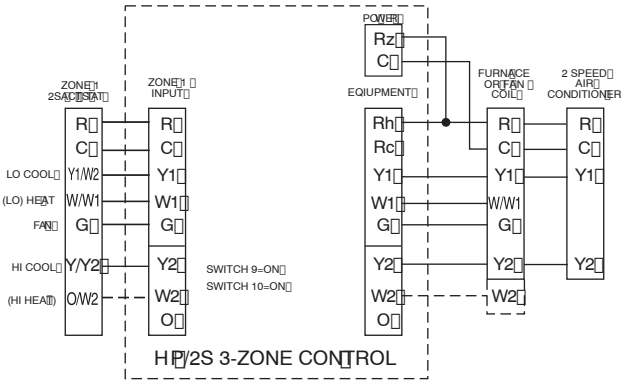
A04196

AC 3-Zone Control, AC Stat, 1-Stg. AC with 1-Stg. Heat



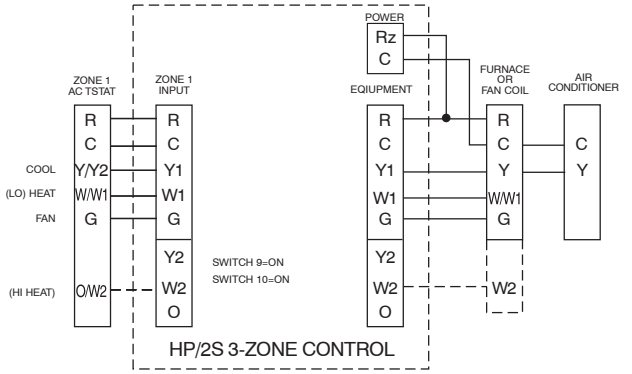
A04198

HP/2S 3-Zone Control, HP Stat, 1-Stg. HP with 1-Stg. Aux. Heat



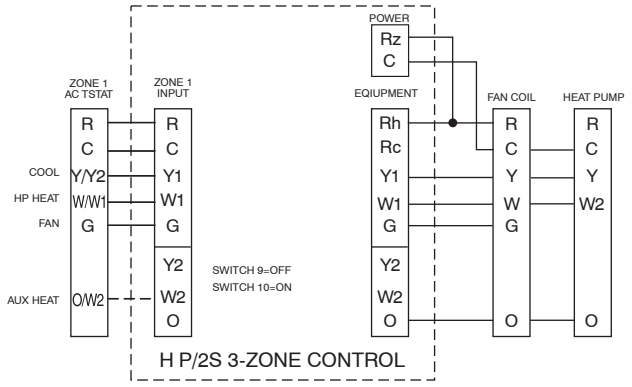
A04200

HP/2S 3-Zone Control, AC Stat, 2-Spd AC with 1-or 2-Stg. Heat



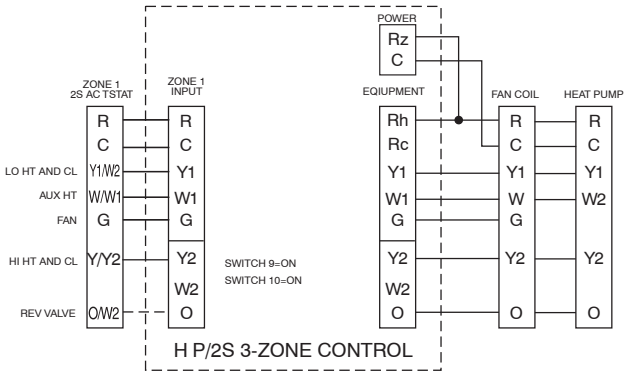
A04197

HP/2S 3-Zone Control, AC Stat, 1-Stg. AC with 1- or 2-Stg. Heat



A04199

HP/2S 3-Zone Control, AC Stag, 1-Stg. HP with 1-Stg. Aux. Heat



A04201

HP/2S 3-Zone Control, HP Stat, 2-Spd HP with 1-Stg. Aux Heat

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