

EnviroZone-4 & EnviroZone-2 Quick-Start Guide



This guide is intended to give the installer a brief set of instructions about how to set up the FHP EnviroZone System. For more detailed information about the EnviroZone Controller, refer to the **EnviroZone: Specification Document**. In this document, EnviroZone-4 and EnviroZone-2 will be referred to as EnviroZone.

Mounting

1. Remove the clear lid from the EnviroZone Enclosure.
2. Using pliers, break out the necessary “knock-outs” for wiring on the side of the gray base of the EnviroZone Enclosure.
NOTE: If using the holes on the back of the enclosure for surface mount wiring this may not be necessary.
3. Using flat or pan-head screws (at least 2); mount the gray base of the EnviroZone Enclosure on a flat surface.
4. After wiring is completed, replace the clear lid.

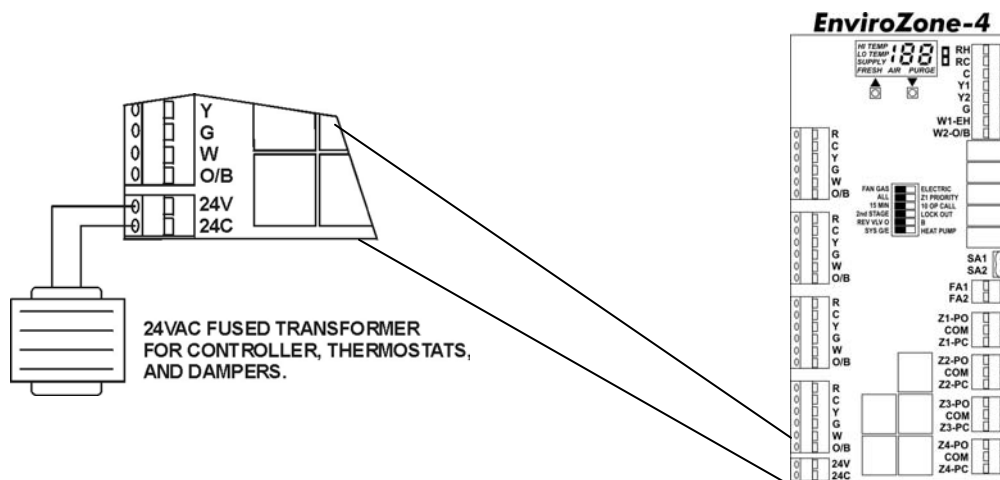
Power

The EnviroZone System requires a separate 24VAC transformer for powering the EnviroZone Controller Board, Zone Thermostats and Dampers. Connect 24VAC and 24VAC(c) to the POWER Connector on the bottom left of the EnviroZone Controller Board.

EnviroZone-4 TRANSFORMER SIZE = 18VA (for Controller and 4 Thermostats) + 10VA (per Damper)
[Example: If the system has 4 Dampers, the transformer needs to be greater than 58VA]

EnviroZone-4 (with 3 Zones) TRANSFORMER SIZE = 16VA (for Controller & 3 Stats) + 10VA (per Damper)
[Example: If the system has 3 Dampers, the transformer needs to be greater than 46VA]

EnviroZone-2 TRANSFORMER SIZE = 14VA (for Controller and 2 Thermostats) + 10VA (per Damper)
[Example: If the system has 2 Dampers, the transformer needs to be greater than 34VA]

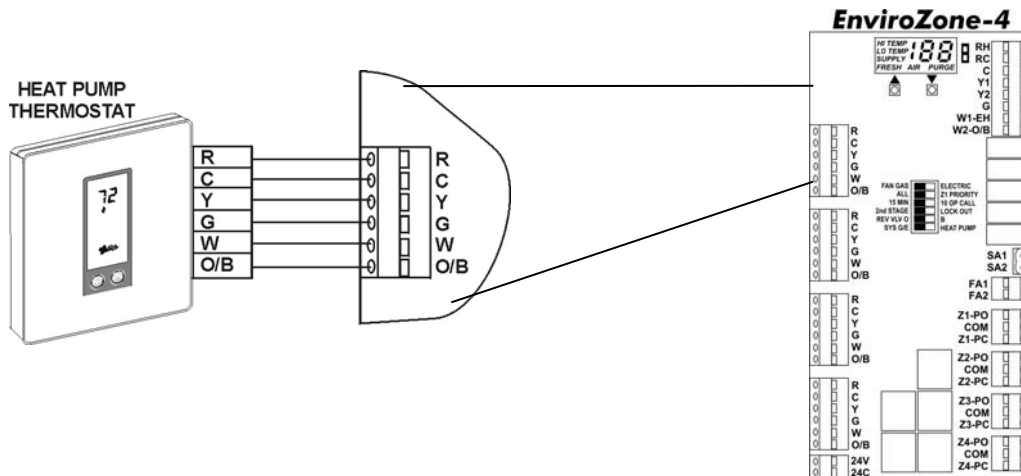
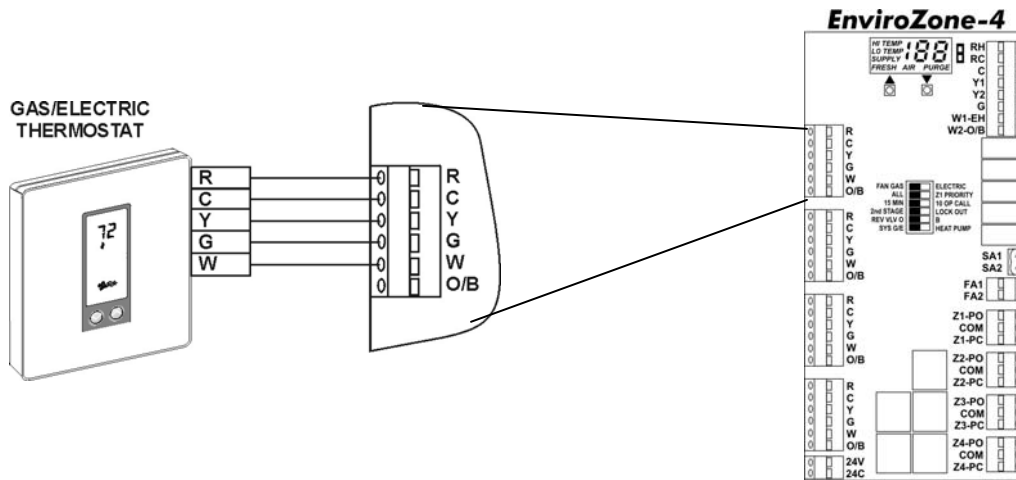


Wiring

Thermostats Wiring

EnviroZone will operate using thermostats that have a common or are battery operated, follow the below steps to connect each of the thermostats to the EnviroZone Controller Board.

1. Connect either single stage heat pump thermostats or gas/electric thermostats to each terminal block labeled THERMOSTAT 1 through 4.
2. The THERMOSTAT 1 will operate ZONE 1 damper, THERMOSTAT 2 will operate ZONE 2 damper and so on through THERMOSTAT 4.
3. Hold down the orange button adjacent to the terminal openings and push the thermostat wires into SCREWLESS terminals labeled R,C,Y,G,W and O/B (as applicable).
4. Connect the other end of the thermostat wire to the thermostat for the associated ZONE.



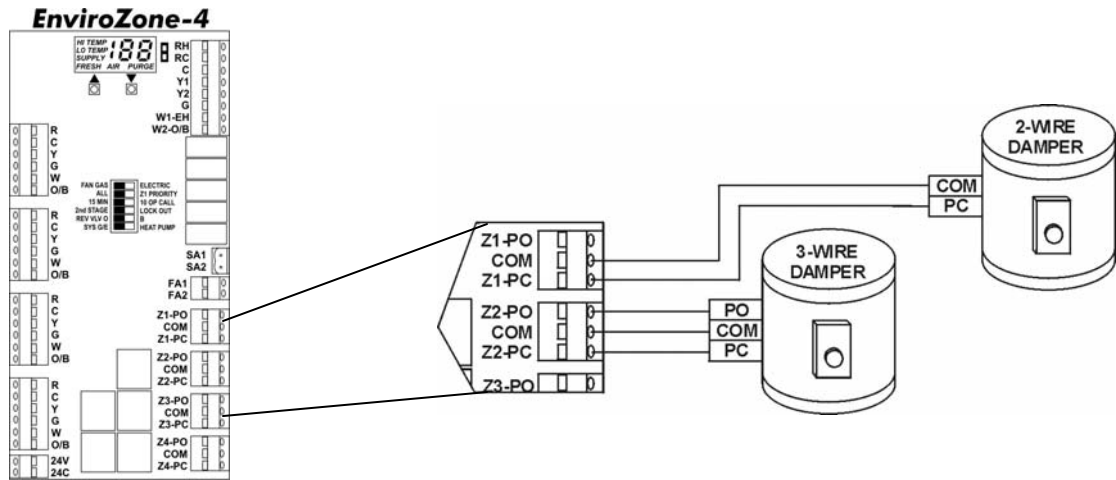
Damper Wiring

When using **Power Close/Spring Open** dampers follow the steps below to connect each of the dampers to the EnviroZone Controller Board:

1. Use 18/2 or 18/3 solid core wire
2. Hold down the orange button adjacent to the terminal block openings labeled Z1-PC and COM and push wires for the ZONE damper into the SCREWLESS terminals.
3. Connect the other end of the wire to the SCREWLESS terminals on the ZONE damper.

If using a **Power Open/Power Close** damper follow the steps below to connect each of the dampers to the EnviroZone Controller Board:

1. Use 18/3 solid core wire
2. Hold down the orange button adjacent to the terminal block openings labeled Z1-PC, COM and Z1-PO and push wires for the ZONE damper into the SCREWLESS terminals.
3. Connect the other end of the wire to the SCREWLESS terminals on the ZONE damper.



Supply Air Temperature Sensor [SA Sensor] Wiring

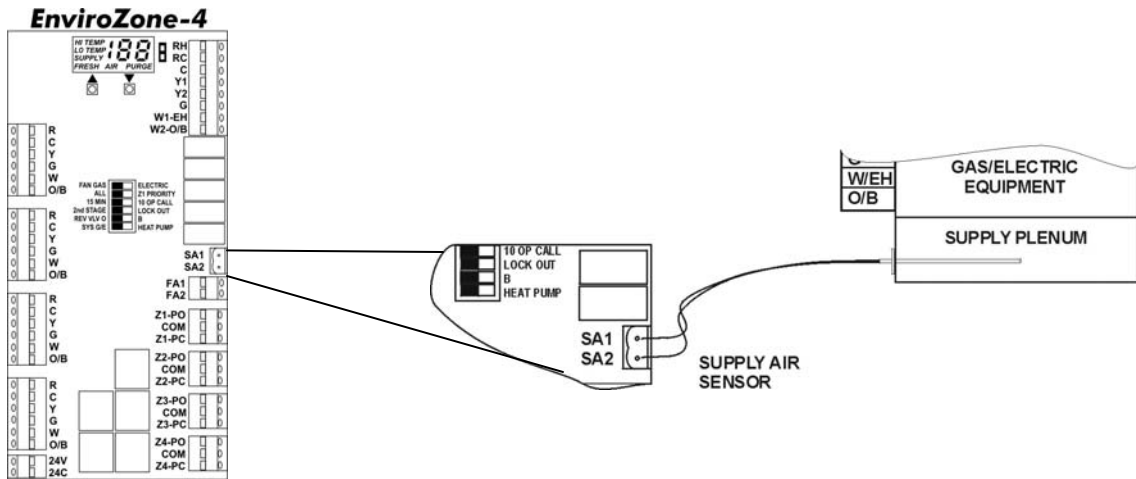
Sensor Placement (Location)

Gas/Electric – Sensor should be located in Supply Air Plenum where it will sense AVERAGE air temperature within the plenum. The most ideal placement for the Sensor will be 2 to 4 feet beyond the evaporator. Make sure the sensor is in the air stream and secured properly.

Heat Pump – The sensor is placed inside the cabinet of the air handler after the coil but before the blower. Make sure the sensor is in the air stream and secured properly.

Sensor Wiring

Using the provided GREEN connector (Factory Connected to Sensor Wire) plug the SA Sensor wire into the EnviroZone Controller Board. **NOTE: WITHOUT THIS SENSOR, THE EnviroZone CONTROLLER BOARD WILL NOT OPERATE.**



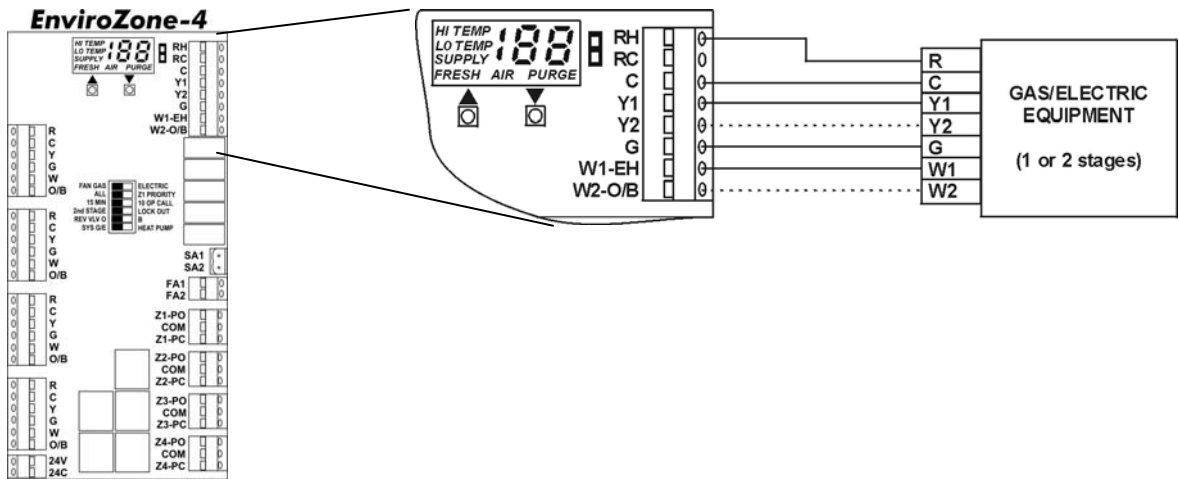
Equipment Wiring

Connect the Equipment Control Wires from the Unit to the EQUIPMENT Terminal Block on the Top Right of the EnviroZone Controller Board. Use the terminal labeled “W1 EH” for 1st stage heat when using gas/electric equipment or emergency heat on heat pump. Use the terminal labeled “W2 O/B” on 2nd stage heat on gas/electric equipment. Use the terminal labeled “W2 O/B” for reversing valve when using heat pump.

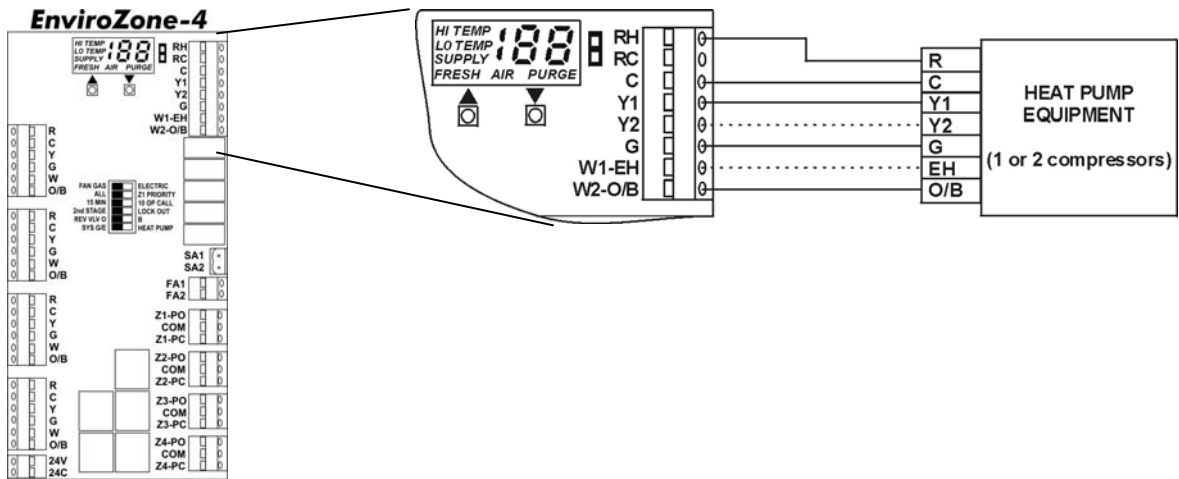
NOTE: THE ‘C’ TERMINAL MUST BE CONNECTED TO THE CONTROLLER AND EQUIPMENT IN ORDER FOR THE EQUIPMENT RELAYS TO ENERGIZE.

**See next page for wiring diagrams.*

GAS-ELECTRIC SYSTEM WIRING



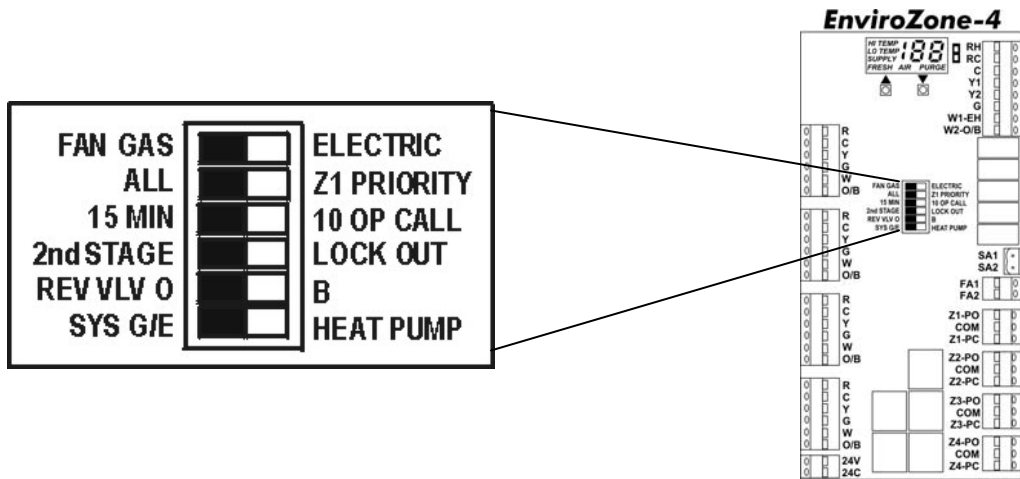
HEAT PUMP SYSTEM WIRING



Configuration

DIP Switches

ALL of these DIP Switches MUST BE SET according to the equipment type, thermostats being used as well as the desired functionality of the EnviroZone System. If not, unpredictable and undesirable results may occur. See the table below for DIP Switch descriptions.

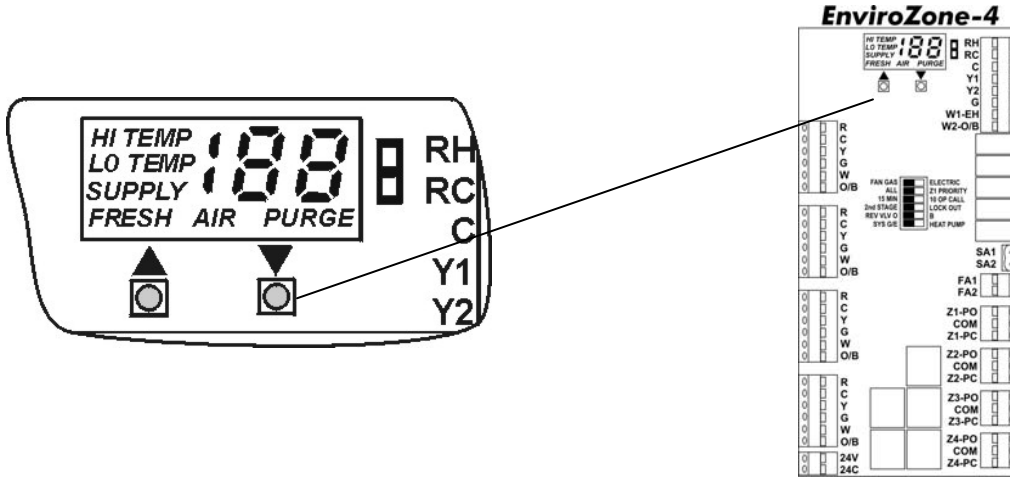


| | | |
|--------|-----------------------|--|
| DIP #1 | FAN GAS | Operates fan through fan relay, gas furnace. (Factory Default) |
| | ELECTRIC | Operates fan instantly on call for heat. |
| DIP #2 | ALL | Allows any thermostat to change equipment mode. (Factory Default) |
| | Z1 PRIORITY | Allows ZONE 1 to control equipment mode unless satisfied. |
| DIP #3 | 15 MIN | 15 Minute delay between opposing calls. (Factory Default) |
| | 10 OP CALL | 10 Minute delay between opposing calls. |
| DIP #4 | 2 nd STAGE | Normal Operation – 2 nd Stage is always active. (Factory Default) |
| | LOCK OUT | Will not Allow 2 nd Stage if only one ZONE is calling. |
| DIP #5 | REV VLV O | Reversing valve is energized in COOLING. (Factory Default) |
| | B | Reversing valve is energized in HEATING. |
| DIP #6 | SYS G/E | Gas/Electric or Electric/Electric Equipment. (Factory Default) |
| | HEAT PUMP | Heat Pump Equipment ONLY. |

Configuration (Continued)

Push Buttons

The push buttons are used for several different functions. See descriptions below for information on how to use the buttons to setup and view EnviroZone Controller settings.



Fresh-Air Damper Time

To set the Minutes-Per-Hour that the Fresh-Air Damper is OPEN follow the below steps:

1. While the EnviroZone Controller Board is powered, press momentarily and release BOTH of the UP and DOWN Arrow buttons. The Green "FRESH AIR" indication will begin to flash.
2. Within 5 seconds press either the UP or the DOWN Arrow button to change the time. The time is indicated in Number of Minutes-Per-Hour that the Fresh-Air Damper will be OPEN.
3. After the desired time has been selected, wait 5 seconds and 'ST' will flash on the Display, indicating that the time has been set.

NOTE: If NO Fresh Air Damper is installed, '0' (Zero) Time must be set or the equipment fan will run unnecessarily.

Electronic Limit Control™ (ELC)

To set the High and Low Temperature Equipment Cut-Out SetPoints follow the below steps, before completing these steps, ensure that DIP #6 is set correctly choosing the proper equipment type.

HIGH Temperature Cut-Out (Factory Default - GAS/ELECTRIC = 135°F; HEAT PUMP = 120°F)

1. While the EnviroZone Controller Board is powered, press momentarily and release the UP arrow to set the HIGH Temperature Cut-Out. The Red "HI TEMP" indication will begin to flash.
2. Within 5 seconds press either the UP or the DOWN Arrow button to change the HIGH Temperature Cut-Out. The temperature indicated here represents the highest temperature allowed at the supply air sensor.
3. After the desired temperature has been selected, wait 5 seconds and 'ST' will flash on the Display, indicating that the HIGH Temperature Cut-Out has been set.

LOW Temperature Cut-Out (Factory Default - GAS/ELECTRIC = 48°F; HEAT PUMP = 48°F)

4. While the EnviroZone Controller Board is powered, press momentarily and release the DOWN arrow to set the LOW Temperature Cut-Out. The Red "LO TEMP" indication will begin to flash.
5. Within 5 seconds press either the UP or the DOWN Arrow button to change the LOW Temperature Cut-Out. The temperature indicated here represents the lowest temperature allowed at the supply air sensor.
6. After the desired temperature has been selected, wait 5 seconds and 'ST' will flash on the Display, indicating that the LOW Temperature Cut-Out has been set.

Configuration (Continued)

Thermostat Type

NOTE: THIS ONLY APPLIES TO HEAT-PUMP INSTALLATIONS

To set type of Thermostat being used on the system follow the below steps:

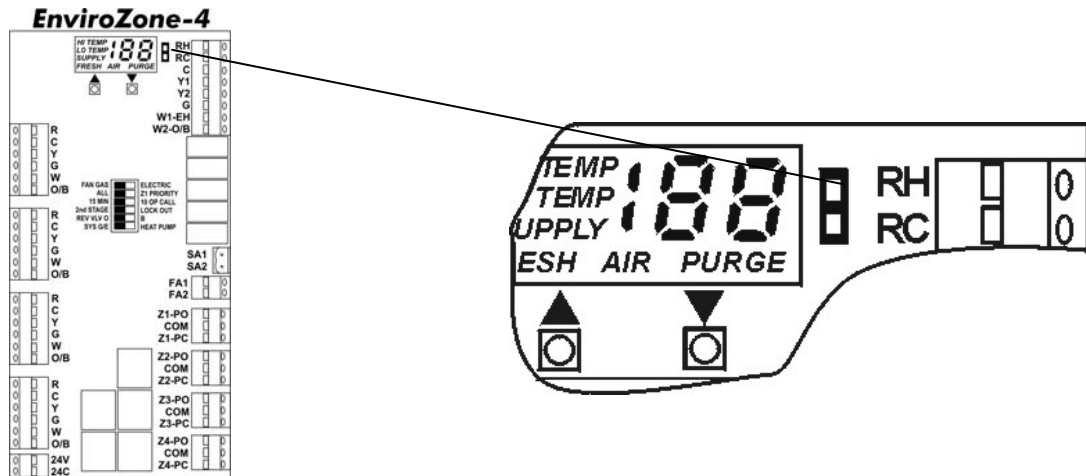
1. While the EnviroZone Controller Board is powered, press AND HOLD both the UP and DOWN Arrow buttons until the Numeral "1" appears [this Numeral is an indication of the ZONE Thermostat number], then either "GE" or "HP" will appear on the display.
2. Within 5 seconds press the DOWN Arrow button to toggle between the thermostat types. "GE" = Gas/Electric Thermostat; "HP" = Heat Pump Thermostat
3. After the desired thermostat type has been selected for this ZONE, press the UP arrow (within 5 seconds) to select the next zone. The Numeral "2" will appear [this Numeral is an indication of the ZONE Thermostat number], then either "GE" or "HP" will appear on the display.
4. Repeat Steps 2 and 3 for each of the ZONES being used.
5. After all thermostat types have been selected for each ZONE, wait 5 seconds and 'ST' will flash on the Display indicating that the Thermostat Type has been set.

NOTE: For Emergency Heat to be utilized, Zone #1 MUST have a Heat Pump thermostat connected.

RC/RH Jumper

The RC/RH Jumper is Factory Installed on the EnviroZone Controller Board. If the system being used requires separate Heat and Cool Transformers, REMOVE this jumper [JP2] at the top right of the board.

Note: In the case of a Heat-Pump System, this Jumper ALWAYS needs to be installed.



Operation

Equipment LEDs

Diagnostic LEDs indicate which equipment circuits are energized with 24VAC. When no 'R' LED is on, check power from the HVAC unit.

Thermostat LEDs

Each LED indicates what mode is being powered through the thermostat.

- The Red LED adjacent to 'R' indicates EnviroZone has power available for the thermostat.
- The Yellow LED adjacent to 'Y' indicates a cooling call from the thermostat.
- The Green LED adjacent to the 'G' indicates Fan call from thermostat.
- The Red LED adjacent to the 'W' indicates a Heat call from thermostat.
- The Red LED adjacent to the 'O/B' indicates Reversing Valve call from thermostat.

Damper LEDs

- Red LED indicates damper is powered closed.
- Green LED indicates damper is open.

Emergency Heat Lock

This feature has been implemented to ensure that once the system has been set to Emergency Heat (EH), the compressor will not be energized until the system has been taken out of EH mode.

- ONLY Zone#1 Thermostat can set the equipment into EH mode.
- Zone#1 Thermostat must be making a call for EH to set the EnviroZone-2 or -4 into EH mode.
- Once the SmatZone-2 or -4 has been set into EH by Zone#1 Thermostat, it is "Locked" in EH mode and will not make any compressor calls until it has been "UN-Locked"
- Any cooling calls from thermostats other than Zone#1 thermostat will be **ignored** while in EH Lock mode. Any heating calls from thermostats other than Zone#1 will be treated as EH calls while in EH Lock mode.
- To "UN-Lock" EH mode, a call must be made from the Zone#1 thermostat for anything other than EH.
 - **NOTE:** Zone#1 Thermostat must not only be switched out of EH mode but ALSO must MAKE a call for another mode (either Heat-Pump Heat or Cool). If no call is made from Zone#1 Thermostat then the EnviroZone-2 or -4 will remain in EH Lock until Zone#1 does make a call no matter what the other zones are calling for.

Time Delay

After all calls have been satisfied and the equipment is turned off, all dampers open and a 3-minute **Time Delay** will start during which the equipment cannot be energized. This is designed to protect the equipment from re-starting for 3-minutes after it has stopped running. During the 3-minute **Time Delay**, the EnviroZone Controller will not energize the fan. However, the fan may continue to run if the equipment being used has a built in "off-time-delay."

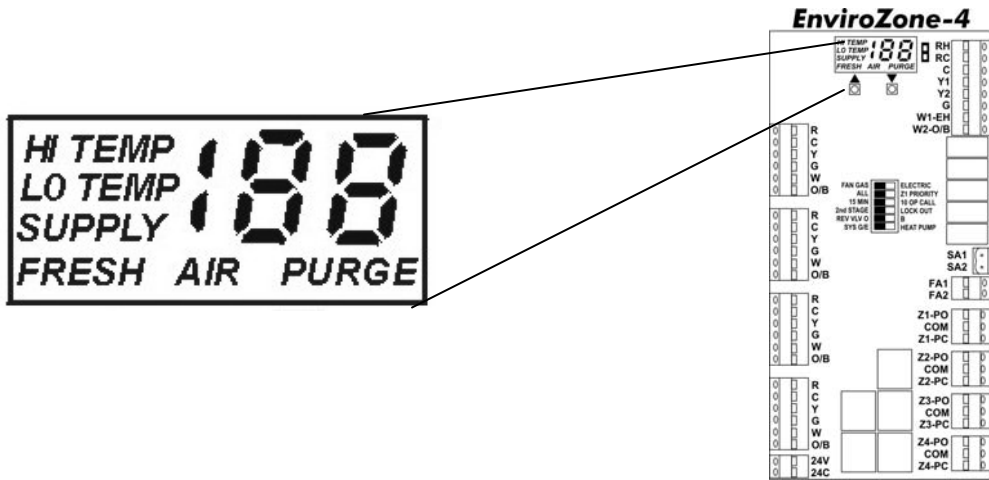
NOTE: There is NO visual indication of the Time Delay on the EnviroZone Controller other than the fact that there will be no equipment calls regardless of what the thermostats call for during the 3-minute duration.

Purge

The Purge Mode is a three-minute time period that allows the blower to continue to operate during Opposing Call Changeover. During the Purge, no heating or cooling equipment will be energized. Purge mode is designed to prevent equipment from operating for three minutes so that HVAC system pressures and temperatures can equalize. During the three-minute Purge Mode, zones with calls for the opposite mode that was last being satisfied will have dampers closed. All other dampers (ones associated with non-calling zone(s) and last zone(s) being satisfied) will remain open during Purge Mode.

Operation (Continued)

Display



| Display Indicator | Status | Description |
|-------------------|----------|--|
| HI TEMP | Flashing | During adjustment of HIGH Temperature Cut-Out (described above) |
| | ON | Supply Air Temp is above HIGH Temp Cut-Out |
| | OFF | Normal Operation (Supply Air Temp is below HIGH Temp Cut-Out) |
| LO TEMP | Flashing | During adjustment of LOW Temperature Cut-Out (described above) |
| | ON | Supply Air Temp is below LOW Temp Cut-Out |
| | OFF | Normal Operation (Supply Air Temp is above LOW Temp Cut-Out) |
| SUPPLY | Flashing | Indicates that NO Supply Air Temp Sensor is Connected to EnviroZone |
| | ON | Normal Operation (Indicates the Temp displayed is the Supply Air Temp) |
| | OFF | During adjustment of Thermostat Types (described above) |
| FRESH AIR | Flashing | During adjustment of Fresh-Air Damper Time (described above) |
| | ON | Indicates that the Fresh-Air Damper is OPEN |
| | OFF | Indicates that the Fresh-Air Damper is CLOSED |
| PURGE | ON | During System Purge and Opposing Call Changeover |
| | OFF | Indicates NO Purge condition |

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EASY WIRING - FLEXIBLE CONFIGURATION

