

THE GREEN ZONE™

Zone Control Made Simple™

Z-200-HP Installation and Operation Instructions

2 Heat / 1 Cool Heat Pump - Auto Changeover - First Call Priority - Time Share



Sequence of Operation:

The Green Zone™ Z-200-HP is a residential / light commercial zone control system that allows a single heat pump to have up to two separate zones. Each zone is controlled by its own space thermostat and motorized zone damper. If a zone thermostat calls for heating or cooling, the zone not calling will have its damper powered closed, and the zone calling will have its damper opened. The heating or cooling will also be brought on at the same time. When the zone calling is satisfied, the heating or cooling equipment turns off. If one zone calls for heating and another zone calls for cooling, the first zone to call receives priority. When the first call is satisfied, the system will changeover and take care of the opposite call. If a zone being served (heating or cooling) has not been satisfied within 20 minutes and an opposite call takes place, the system will changeover. When the zone is satisfied or 20 minutes has gone by, the system will again changeover if an opposite call exists. This is referred to as Auto Changeover - First Call Priority - Time Share. In the event of a tie, cooling will receive priority. The changeover valve only changes position when the mode of operation changes.

High and Low Limit Protection:

The Z-200-DAS Discharge Air Sensor should be mounted on the discharge air plenum of the heat pump unit and wired to the DAS terminals on the panel. If the heating temperature rises above 140° F or if the cooling temperature falls below 45° F, the sensor will cycle the equipment, while the fan continues to run. When the system goes out on high or low limit a 3 minute time delay is activated before heat pump is allowed to energize (providing the discharge air temperature has risen above 45° F or below 140° F). LIMIT LED blinks when high or low limit is reached.

Ventilation Mode:

Zone ventilation is established by the individual zone thermostat fan setting. Any thermostat set in the fan AUTO mode will not receive ventilation air when no equipment calls are taking place. Any thermostat set in the fan ON mode will receive ventilation air whenever there are no heating or cooling calls taking place.

Power Requirements:

The Z-200 requires a separate 24 Vac transformer. A 40 VA transformer will power the panel and up to four (4) dampers. A 75 VA transformer will power the panel and up to six (6) dampers. If more than three (3) dampers for an individual zone are required, a RY-1-HB relay should be used with an additional properly sized transformer. Jackson Systems HD-XXXX rectangular and D-XX round dampers are powered closed/spring return open. Damper actuators are rated at 10 VA.

Wiring:

All wiring is done using conventional 18 gauge thermostat wire. Thermostats and zone dampers may be located up to 300 feet from the Z-200 panel.

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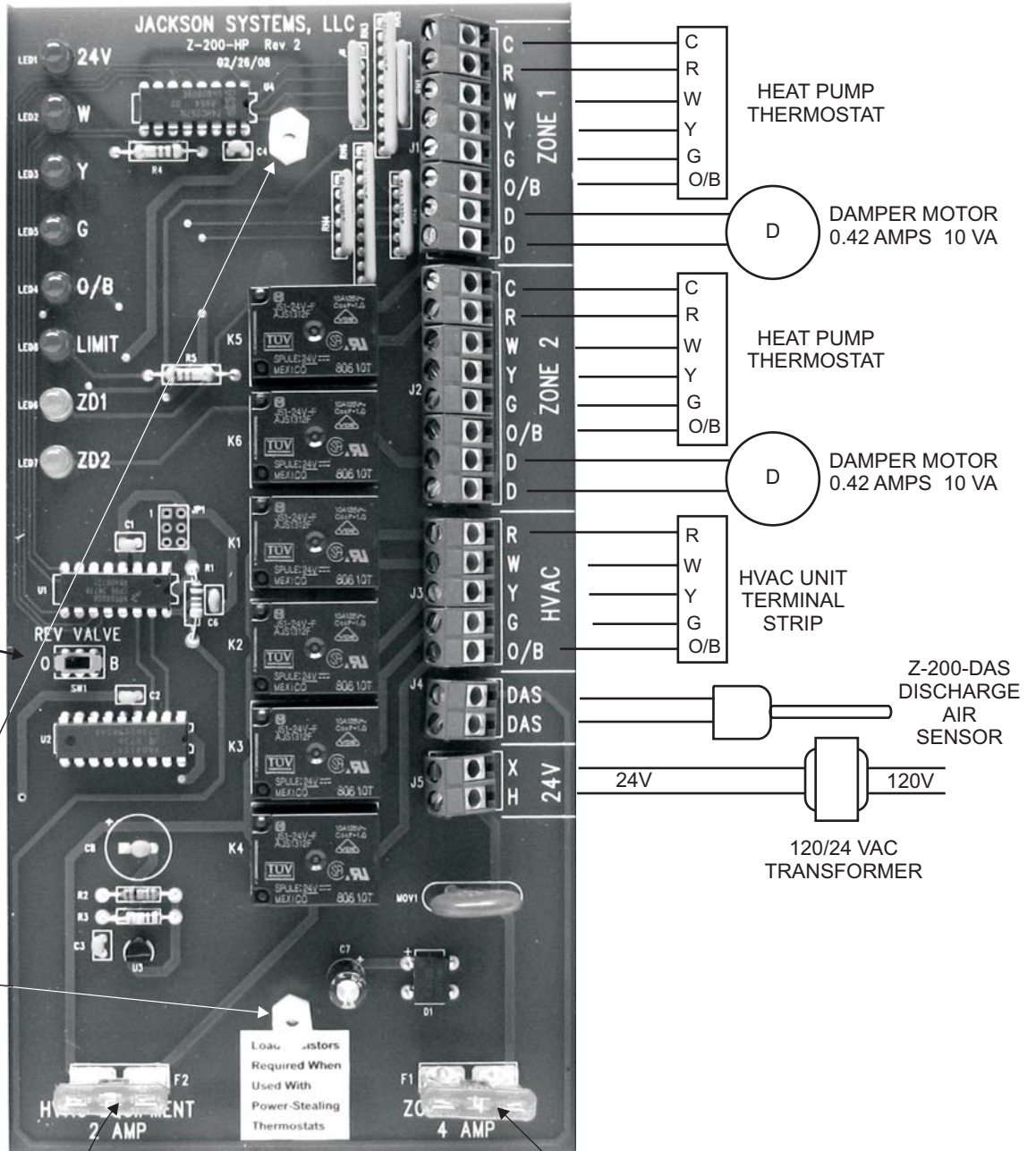
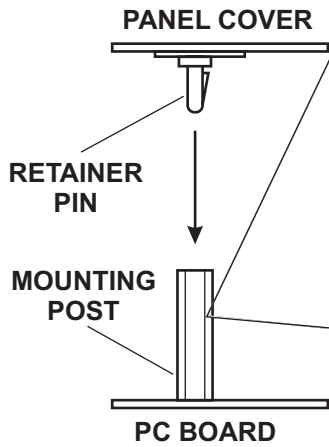
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LED FUNCTIONS

- 24 V (ON with 24 Vac)
- W (ON with Aux/EH heat)
- Y1 (ON with compressor)
- G (On with fan call)
- O/B (On when reversing valve is energized)
- LIMIT (ON when sensor is connected - Blinks when out on High or Low limit)
- ZD1 (ON when damper is open)
- ZD2 (ON when damper is open)

O/B Reversing Valve Selector Switch



2 Amp fuse protects the relay contacts

4 Amp fuse protects printed circuit board

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Installation:

Mounting the Panel:

Carefully remove the Z-200 panel and cover from the shipping carton. Slide the PC board out of the snap track base and mount the base to a flat surface either on or near the HVAC indoor unit in an area that will facilitate easy access for wiring. Reinstall the PC board by carefully centering it over the base and snapping it back into the track groves.

Wiring Zone Thermostats and Dampers:

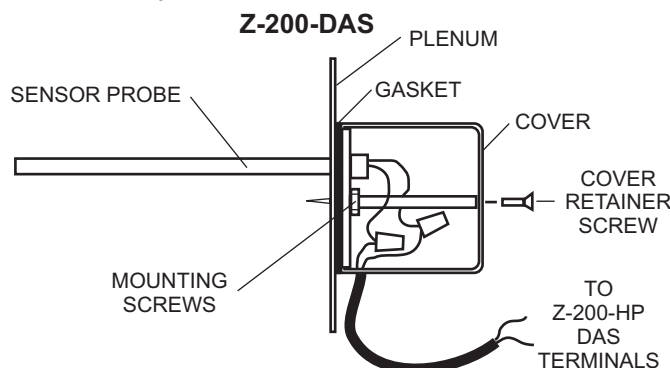
Refer to the logic panel wiring diagram. Wire zone 1 thermostat and its associated damper to the ZONE 1 terminals on the logic panel. Wire zone 2 thermostat and damper in the same manner.

Wiring HVAC Equipment:

Wire the heat pump unit to the Z-200-HP HVAC panel terminals. Note: Do not wire the equipment common to the Z-200-HP panel.

Installing and Wiring the Z-200-DAS Discharge Air Sensor:

Drill a 1/2" hole in the middle of the main discharge air plenum approximately 18" downstream of the heat exchanger. Remove the Z-200-DAS cover. Slide the probe into the hole and use two self-tapping sheet metal screws to secure the base making sure that the gasket is in place. Use 18-2 thermostat wire and wire nuts to attach the sensor leads. Replace the cover and wire the sensor to the DAS terminals on the Z-200-HP panel.



Wiring the Transformer:

Wire a separate 24 volt transformer of the proper VA to the logic panel terminals marked (X) and (H). Note: Do not power the panel up until all wiring is completed.

Test, Check and Startup:

1. Verify that all component wires have been connected to the proper terminals and are secure.
2. Disconnect the HVAC equipment (R) terminal wire at the panel and apply 24 volts to panel.
3. Take a jumper wire and momentarily short the DAS terminals. This will put the panel time delays in "speed up" mode.
4. Place both zone thermostats in the OFF position.
5. Place zone 1 thermostat in the heating mode and have the thermostat call for heat. Confirm that (ZD1) LED is ON and that (W) LED is ON. Confirm that zone 1 damper is open and zone 2 damper is closed. There will be no voltage across zone 1 (D) and (D) terminals and 24 volts on zone 2 (D) and (D) terminals.
6. Put zone #1 thermostat in the cooling mode and have the thermostat call for cooling. Confirm that (ZD1) LED is ON and that the (Y) and (G) LEDs are ON. If the thermostat has internal time delays, the cooling call may not activate immediately.
7. Turn zone #1 thermostat off and repeat steps 5 and 6 with zone #2 thermostat. Remember, the zone calling will have its damper open and there will be no 24 Vac on the 'D' and 'D' terminals for that zone.
8. Determine the ventilation mode of each zone thermostat by setting the thermostats in the Fan Auto or ON mode.
9. Remove 24 Volts to the panel and reconnect the HVAC 'R' wire.
10. When 24 Volts is again applied to the panel, the internal time delays will be activated.
11. Confirm that the LIMIT LED is ON. If not, check LIMIT wiring. If the system goes out on high or low limit, the LIMIT LED will blink.

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Specifications:

Panel Dimensions:

Height: 8.0 Inches
Width: 6.0 Inches
Depth: 1.375 Inches

Mounting:

Snap Track with 2 back plate screws

Operating Temperature Rating:

-40° F to 150° F

Operating Humidity:

5% to 90% RH non-condensing

Wiring:

18-gauge wire for all equipment
and system connections

Time Delays:

3 minutes minimum off between
heating and cooling calls
3 minutes minimum off on low limit
20 minute time share

Thermostats:

2 heat / 1 cool heat pump thermostats
Programmable or non-programmable
Auto or manual changeover

Terminal Designations:

Thermostats:

C 24Vac (Common)
R 24Vac (Hot)
W Aux/EH Heat
Y Compressor
G Fan
O/B Reversing Valve

Dampers:

D Powered Closed / Spring Open
(2 wire)

High / Low Limit

DAS Discharge Air Sensor (2 wire)

HVAC Equipment:

R 24Vac (Hot)
W Aux/EH Heat
Y Compressor
G Fan
O/B Reversing Valve

Panel Power:

X 24Vac (Common)
H 24Vac (Hot)

Typical System Layout

