

# HEAT PUMP WIRING HVP 3-ZONE

## Overview

This document describes how the Ecosmart HVP 3-Zone can be used with heat pumps.

This example uses a Honeywell TH6220U. Honeywell T6 Pro Installation Instructions included at the end of this Technical Acquaint.

Other similar thermostats may work; however, it is the responsibility of the installer to determine the correct equivalent configuration of the thermostat for proper operation.

The TH6220U is configured as a **conventional 2H/2C system – NOT heat pump variety** (see Honeywell installation instructions Page 4).

Supplementary heating can be provided by **tankless water heaters, boilers or electric heaters** and is automatically brought on using W2 when heat can no longer be efficiently transferred from the outside air to the heat pump.

For the Honeywell TH6220U thermostat, the following must be configured in the Installation Set Up (ISU) for correct operation. Other parameters can be chosen as preferred, e.g., °F or °C etc.

#ISU	ISU Name	ISU Options
130	Outdoor Sensor	0 (none)
200	Heating System Type	1 (Conventional Forced Air Heat)
205	Heating Equipment Type	5 (Hot Water Fan Coil) choose as appropriate
220	Cool Stages	1
221	Heat/Backup Stages	2
300	System Changeover	1 (Automatic)
303	Auto Changeover Differential	0 (0°F to 5°F)
365	Compressor Cycle Rate Stage 1)	3
370	Heating Cycle Rate Stage 1	3
371	Heating Cycle Rate Stage 2	3
387	Compressor Protection	5 minutes
430	Min. Cool Setpoint	50°F
431	Max. Heat Setpoint	90°F
1400	Backlighting	1 (Continuous)
1401	Backlighting Brightness	5

# HEAT PUMP WIRING HVP 3-ZONE

## Heating Operation (actual temperature meets set temp.)

(If outside temperature is warm enough such that heat pump can maintain desired temperature).

- Any zone calls for heat. Thermostat: W = 24V
- Board output: Y = 24V via AUX24 output, turning on the heat pump compressor
- Board output: Boiler contacts close, setting heat pump OB to 24V (heating mode)

## Heating Operation (actual temperature approximately 4°F below set temp.)

(If outside temperature is not warm enough, and the heat pump cannot maintain desired temperature).

- Any zone calls for heat. Thermostat: W = 24V
- Board output: Y = 24V via AUX24 output, turning on the heat pump compressor
- Board output: Boiler contacts close, setting heat pump OB to 24V (heating mode) \*\*
- Supplementary heat turns on: W2 = 24V from thermostats to activate DPST relay
  - For tankless operation: Pump starts, bringing on tankless heating
  - For boiler operation: Dry contacts bring on boiler heating.
  - For electric operation: W2 turns on electric heat contactor
- Supplementary heat automatically turns off when actual temperature becomes close to the chosen temperature determined by the internal algorithm of the thermostat.

## Cooling Operation

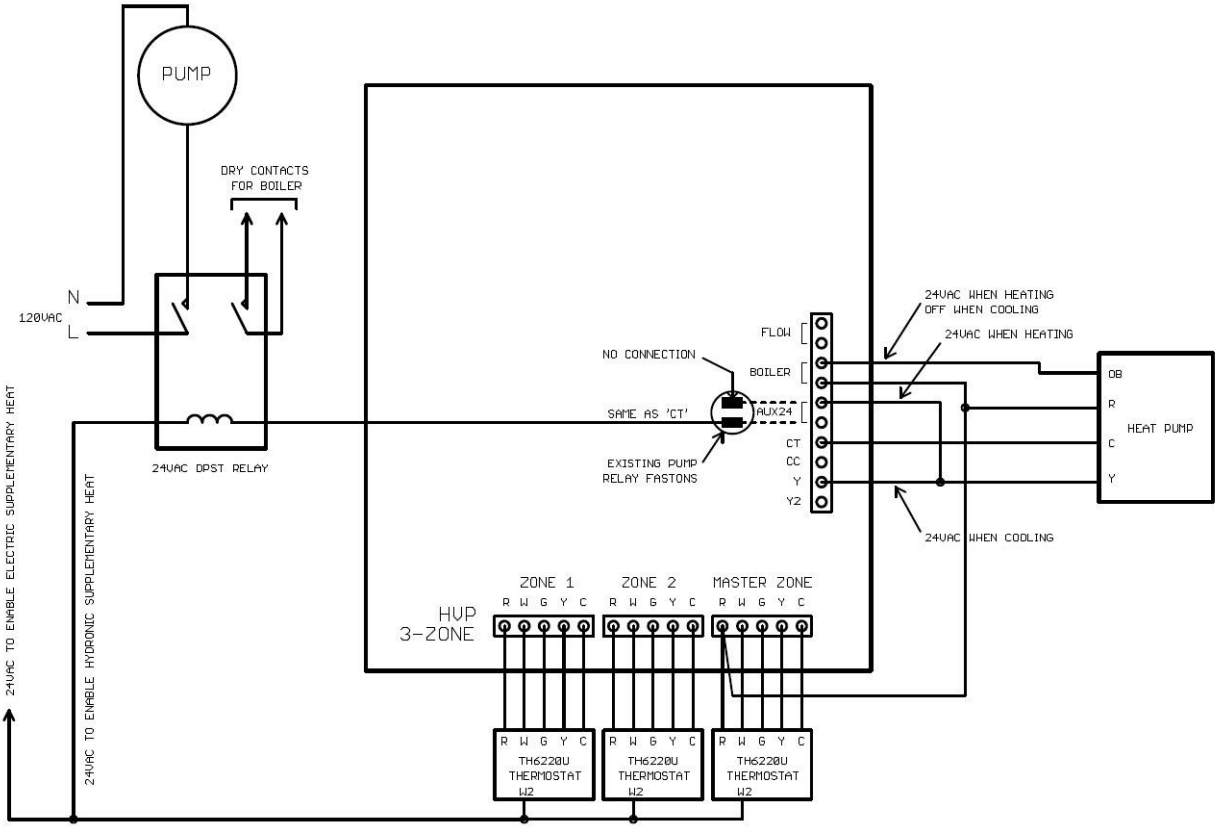
- Any zone calls for cooling. Thermostat: Y = 24V
- Board output: Y = 24V turning on the heat pump compressor
- Board output: Boiler contacts open, setting heat pump OB to open (cooling mode) \*\*

## Turning On Supplementary Heating Methods

1. Tankless Heater – connect pump up to 250W to black terminal block marked ‘pump’.
2. Boiler – dry contacts are available on double pole relay to initiate boiler and pump in (1) may be used to circulate the hot water if not already included in the boiler setup.
3. W2 connection from thermostats may be used to turn on a 24VAC contactor for an electric heating module.

\*\* Heat pump reversing valve operation: 24V = heating mode, Open = cooling mode

# HEAT PUMP WIRING HVP 3-ZONE



WIRING FOR HVP 3-ZONE WITH HEAT PUMP