SUBMITTAL

ZONEX
SYSTEMS
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DTHP4A
Heat Pump Controller

DESCRIPTION

The DTHP4A is a microprocessor based, auto changeover two stage heat pump system controller with on-board fossil fuel control. The DTHP4A supports up to four zones utilizing pressure dependent, two position motorized dampers. Mode management is vote initiated, based upon first called first served, with an opposite mode caller to initiate a changeover sequence. Upon a thermostat call for the opposite mode, a fifteen minute cycle timer is initiated in attempt to satisfy current mode callers. Upon time completion, a successive three minute purge cycle is initiated prior to mode changeover.

The DTHP4A stages two compressor outputs and one auxiliary heat source output based upon time and temperature conditions. Fossil fuel control is based upon time and temperature or with optional outdoor air sensors. An emergency heat mode disables all compressor outputs in the event of a heat pump malfunction, and will enable the auxiliary heat source.

In the heat mode, Y2 will energize after Y1 has run for a minimum of 4 minutes and with a LAT of high limit minus 25° or less. Y2 will terminate when the LAT is greater than 105° F. Y1 will terminate when the LAT is greater than high limit. With a fossil fuel application, controller will energize furnace if OAT is less than Balance Point setpoint, or after 8-minute heat stage. W2 will energize after Y1 has run for 8 minutes and the LAT is below 92° F.

In the cool mode, Y2 will energize after Y1 has run for a minimum of 8 minutes and with a LAT greater than low limit plus 15°. Y2 will terminate when the LAT is less than low limit plus 5° F. Y1 will terminate when the LAT is less than low limit, or when all cool calls are satisfied.

TECHNICAL DATA

Electrical:
Supply Voltage: 24vac
Power consumption: 3.0 VA
Inputs:
- Digital leaving air temperature sensor
- 4- digital / mechanical heat pump thermostats

Outputs:
- 7- SPST dry contacts, 12A @ 120vac

Environmental:
Operating temperature: 32 to 160° F (0 to 71° C)
Operating humidity: 10-95**%,** non-condensing
Storage temperature: 0 to 160° F (-18 to 71° C)

General:
Dimensions: 7 1/2" H x 10 1/2" W x 1 1/2" D
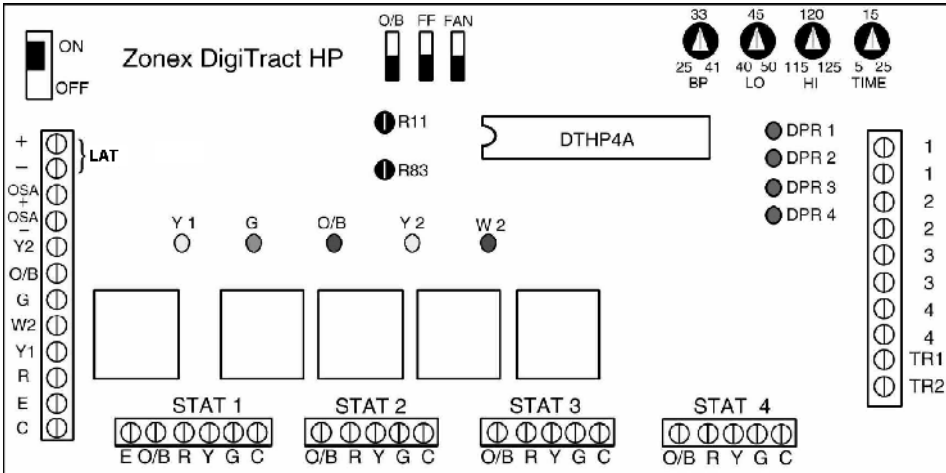**Enclosure:** Galvanized steel

Rev 6/1/10

DTHP4A HEAT PUMP CONTROLLER

ORDERING INFORMATION

Part No.   Description

DTHP4A   Two stage Heat Pump Controller and Fossil Fuel Controller

TERMINAL FUNCTIONS

OUTPUTS:

Equipment terminal strip
+/- FOAS Fossil Fuel
+/- Nominal 5V DC to leaving air sensor, LAS.
W2- Auxiliary heat relay output.
G- Fan relay output.
Y1- Compressor first stage output.
Y2- Compressor second stage output.
O/B- Reversing valve output.
R- 24vac input from equipment transformer.
E- Emergency heat relay output.
L- Service LED output.
C- 24vac common input from equipment transformer

Damper terminal strip

1/1-4/4- 24vac output to power close damper.
TR1- 24vac damper power input, from external transformer.
TR2- 24vac damper common, from external transformer.

THERMOSTAT INPUTS:

R- 24vac input.
C- 24vac common (not required with all thermostats).
G- Fan relay input.
Y- Cooling / heating input.
O/B- Reversing valve / mode input.
E- Emergency / auxiliary heat input. (STAT 1 only.)
L- Service diagnostic input

FEATURES

- Intelligent time and temperature staging
- On board leaving air temperature sensor
- Auto changeover controller
- Supports 2-4 zones
- Uses standard 18 gauge thermostat wire
- 24vac operation
- Automatic purge mode
- Supports two speed or two independent compressors
- LED status indicators for all system functions
- Dampers can be paralleled for larger air volume requirements
- Commercial and residential application