

HPU3 Water Source Heat Pump Controller
Self-Contained Interoperable Controller Model UCP-1

SUPERSEDES: February 21, 2012

EFFECTIVE: June 11, 2012

Job: _____ Engineer: _____
Contractor: _____ Rep: _____
Date: _____ Tag/Item #: _____

HPU3

The HPU3 heat pump controller is a stand-alone microprocessor-based controller for liquid source heat pump units. The application includes liquid source heat pump units with two-stage compressor, reversing valve, fan and dehumidification.

Overview

The HPU3 incorporates digital outputs in the form of triacs for fan start/stop, two compressor stages, dehumidification enable, and a reversing valve. An analog output for modulated fan control is also provided. Digital inputs are provided to monitor equipment status and high and low pressure alarms. A two-wire serial interface is provided for the thermostat. An analog input is available for applications that require power monitoring.

The controller is based on LONWORKS[®] networking technology. The controller can be networked to a higher-level control system for monitoring and control applications.

Features

- Two stage compressor heating/cooling control
- Reversing valve control
- Local backup schedule
- Individual temperature setpoints for occupied/unoccupied heat and cool
- LONWORKS interface to building automation systems
- Equipment status input for additional safety interlocks
- High and Low Pressure Alarm inputs
- Thermostat with space temperature, humidity, temperature setpoint adjust, fan override, occupancy override
- Fan control energized on call for heating or cooling
- Automatic heat/cool changeover
- Global unit enable for main plant synchronization
- Remote sensor capabilities
- Automatic configuration with the LCI
- Real Time Clock
- Alarm/Event reporting

SPECIFICATIONS

Electrical

Inputs

- Cabling: twisted shielded pair, 18 AWG recommended—500 feet max. (152 meters)
- Resolution: 10 bit

Stat

- Precon Type III 10K thermistor, or
- 12 Volt nominal, internally limited to 0.04 A (SLink)

Supply Air Temp

- Precon Type III 10K thermistor

Heat Pump Power Transducer

- 0 to 10 Volts DC

Equipment Status, High Pressure Alarm, Low Pressure Alarm

- Dry Contact
- Normally Open
- 5 Volts DC Max

Outputs

Stage 1, Stage 2, Reversing Valve, Fan, and Dehumidification

- 24 Volts AC
- 1A @ 50C, 0.5A @ 60C, limited by the Class 2 supply rating

Modulated Fan (analog output)

- 0-10 Volt
- 2K Ohm Minimum Load
- 8 Bit Resolution

Power

Power Requirements

- 24VAC (20VAC to 28VAC), requires an external Class 2 supply

Power Consumption

- 7.2W with no external loads, maximum limited by the Class 2 supply rating

Recommended Sensor Wire

Cable Type	Pairs	Details	Taco Catalog No.
18AWG	1	Stranded Twisted Shielded Pair, Plenum	WIR-018

FTT-10A Network

- Speed: 78KBPS
- 42.4 Volts DC max
- Cabling: Maximum node-to-node distance: 1312 feet (400 meters)
- Maximum total distance: 1640 feet (500 meters)

Cable Type	Pairs	Details	Taco Catalog No.
Level 4 22AWG (0.65mm)	1	Unshielded, Plenum, U.L. Type CMP	WIR-022

For detailed specifications, refer to the *FTT-10A Free-Topology Transceiver User's Guide* published by Echelon Corporation (www.echelon.com/support/documentation/manuals/transceivers).

Mechanical

Housing

- Dimensions: 5.55" (141mm) high, 6.54" (166 mm) wide, 1.75" deep (44 mm)
- ABS

Weight

- Controller Weight: 0.70 pounds (0.32 kilograms)
- Shipping Weight: 1.0 pounds (0.46 kilograms)

Electronics

- Processor: 3150 Neuron 10 MHz
- Flash: 48 Kilobytes
- SRAM: 8 Kilobytes
- Termination: 0.197" (5.0 mm) Pluggable Terminal Blocks, 14-22 AWG

Environmental

- Temperature: 32 °F to 140 °F (0 °C to 60 °C)
- Humidity: 0 to 90%, non-condensing

Agency Listings

- UL Listed for US and Canada, Energy Management Equipment PAZX and PAZX7.

Agency Compliances

- FCC Part 15 Class A

CONTROLS MADE EASY®

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