

LHP2 Water Source Heat Pump Loop Controller
Self-Contained Interoperable Controller Model UCP-1

SUPERSEDES: April 19, 2011

EFFECTIVE: June 11, 2012

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

LHP2

The iWorx® LHP2 is a self-contained, microprocessor-based controller for supervisory central liquid source heat pump central plant control applications. Applications include central plant controller applications with one cooling tower and one or two single-stage boilers. Applications may also include two water pumps configured for lead/lag or continuous operation.

Overview

Analog inputs are provided for measuring the temperatures of the boiler supply and tower return water, as well as the heat pump supply and return water. Digital inputs are provided for pump, fan, and boiler flow proof, as well as cooling tower basin level.

The LHP2 incorporates digital outputs in the form of triacs to control the boilers, circulation pumps, tower spray pump, tower fan, tower damper, and tower sump/make-up water valve. In addition, analog outputs are provided to control a tower bypass valve and a variable speed tower fan.

The controller is based on the LONWORKS® networking technology. The controller can be networked to a higher-level control system for monitoring and control applications, and provides heated or chilled water in response to demand from other controllers.

Features

- Modulated cooling tower bypass valve
- Modulated cooling tower fan
- Minimum on and off cycle timers for circulation pumps and boilers
- Runtime accumulation for boilers, pumps, and tower fans
- Lead/lag operation of circulation pumps and boilers
- Maximum of 60 zones (cooling/heating demand units)
- Proportional + Integral control of the modulated bypass valve
- Proportional + Integral control of a variable speed tower fan
- LonWorks interface to building automation systems
- OAT low limit protection and local OAT Sensor
- Flow proof inputs
- Adjustable cooling tower setpoint
- Adjustable boiler (heat addition) setpoints
- User selectable analog or digital cooling tower fan
- Automatic configuration with the Local Control Interface (LCI)
- Alarm/Event reporting
- Real Time Clock

Specifications

Electrical

Inputs

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

Boiler Supply Temperature, Tower Return Temperature, Heat Pump Supply Temperature, Heat Pump Return Temperature, Outside Air Temperature

- Precon Type III 10K thermistor

Pump Flow Proof, Tower Fan Proof, Boiler Flow Proof, Basin Water Level

- Dry Contact
- Normally Open
- 5 Volts DC Max

Outputs

Boiler1, Boiler2, Circulation Pump 1, Circulation Pump 2, Tower Spray Pump, Tower Fan, Tower Damper, Tower Sump

- 24 Volts AC
- 1 Amp at 50 °C, 0.5 Amps at 85 °C, limited by the Class 2 Supply rating

Cooling Tower Valve, Cooling Tower VFD Fan

- 0-10 Volts DC
- 2K Ohm minimum load
- 8 bit resolution

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
- 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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