

LHP-1

The iWorX LHP-1 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

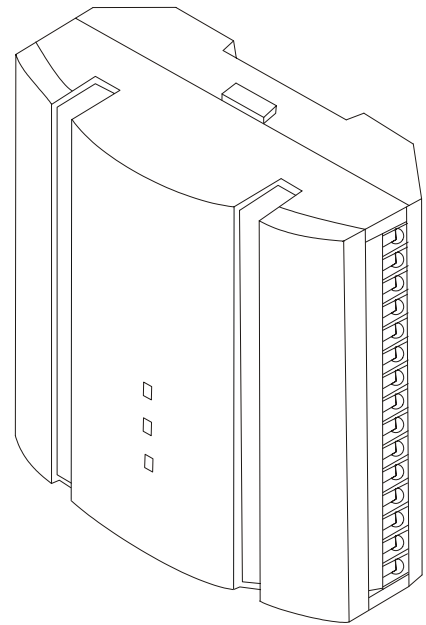
Analog inputs are provided for measuring the temperatures of the boiler supply and tower return water, as well as the heat pump supply and return water. Digital inputs are provided for pump, fan, and boiler flow proof, as well as cooling tower basin level.

The LHP-1 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
- 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



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Specifications

Electrical

Inputs

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

Boiler Supply Water Temperature, Tower Return Water Temperature, Heat Pump Supply Water Temperature, Heat Pump Return Water Temperature

- Precon Type III 10K thermistor

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

- Dry Contact
- Normally Open
- 5 Volts DC Max

Outputs

Boiler 1 & 2, Tower Spray Pump, Circulation Pump 1 & 2, Tower Fan, Tower Damper Open/Close, Tower Sump/Makeup Valve

- 24 Volts AC
- 1 Amp at 50 °C, 0.5 Amps at 85 °C

Tower Bypass Valve, Tower Fan VFD

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

FTT-10A Network

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

Table 1: Network Wire Specifications

Cable Type	Pairs	Details	Connect Air Catalog No.
Level 4 22AWG (0.65mm)	1	Unshielded, Plenum, U.L. Type CMP	W221P-2001
Level 4 22AWG (0.65mm)	1	Unshielded, Non-Plenum, U.L. Type CM	W221P-1002

For detailed specifications, refer to the FTT-10A Free-Topology Transceiver User's Guide published by Echelon Corporation. For information on ordering Connect Air items, contact Connect Air International; 4240 B Street; Auburn, WA 98001 <www.connect-air.com>.

Power

Power Requirements

- 24 VAC nominal (requires an external supply)

Power Consumption

- With no external loads: 15 VA

Mechanical

Housing

- Dimensions: 4 3/8" high, 4 5/16" wide, 2" deep (111 mm high, 110 mm wide, 51 mm deep)
- ABS Polycarbonate

Weight

- Controller Weight: 0.45 pounds (0.22 kilograms)
- Shipping Weight: 0.60 pounds (0.28 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: -40 °F to 185 °F (-40 °C to 85 °C)
- Humidity: 0 to 90%, non-condensing

Agency Listings

- UL916

Agency Compliances

- FCC Part 15 Class A
- CE