

CHB2 Chilled Beam Ceiling Controller

Self-Contained Interoperable Controller Model UCP-1 for Software Version 2

SUPERSEDES: August 15, 2013

Plant ID: 001-4053

EFFECTIVE: January 15, 2014

Job: _____ Engineer: _____

Contractor: _____ Rep: _____

Date: _____ Tag/Item #: _____

CHB2

The CHB2 Chilled Beam Ceiling Controller is a microprocessor-based controller for a dual coil operation. This application can operate one LoFlo® Blocks with heating and cooling switchover.

Overview

The CHB2 provides BTU energy monitoring for a Heating Loop and a Cooling Loop as well as measurement of Supply Water Temperature, Flow, and Return Water Temperature for each loop. Inputs for Supply Air Temperature, Indoor Air Quality, Occupancy, and Beam Temperature are provided. Space Temperature can be sensed by a two-wire serial interface to an iWorX TS300 series thermostat.

The controller incorporates digital outputs in the form of triacs for Fan Operation, two Heating Stages, two Cooling Stages, and a Dehumidifier. In addition, analog outputs are provided to control an analog Injection Signal as well as a modulated signal for a heating and cooling LoFlo® Block.

The CHB2 provides a Dehumidification output for an independent dehumidification unit.

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

Features

- Two stages of cooling
- Two stages of cooling with a selectable stage modulation
- Two stages of heating
- Two stages of heating with a selectable stage modulation
- Manual heat or cool operation or auto switch-over
- Injection/Mixing control with separate reset curves for heat and cool
- Optional dew point control
- Local or global fan setup
- Three speed fan for local fan control
- Dehumidification signal
- Optional BTU energy monitoring
- Optional Flow metering
- IAQ detection, configurable for digital or analog sensors
- P + I control of modulated heating and cooling
- P + I control of injection/mixing control of hot cool supply water
- Individual temperature setpoints for occupied/unoccupied heat and cool
- Supply Air and Duct Humidity monitoring

- Thermostat with space temperature, space humidity, setpoint adjust, fan override, occupancy override
- Local Occupancy override
- Commissioning mode for direct control
- LonWorks interface to building automation systems and host products
- Automatic configuration with the LCI2
- Supervisor control (JENE/Niagara)
- Alarm/Event reporting

SPECIFICATIONS

Electrical Inputs

Hot Water Supply Temperature, Hot Water Return Temperature, Cold Water Supply Temperature, Cold Water Return Temperature, Supply Air Temperature: Precon Type III 10K thermistor

Hot Water Flow, Cold Water Flow, Supply Air RH: 0 - 10 Volts DC

Occupancy: Dry Contact, Normally Open, 5 Volts DC Max

Indoor Air Quality: 0-10V or Dry Contact (configurable)

Electrical Outputs

Cooling Stage 1, Cooling Stage 2, Heating Stage 1, Heating Stage2, Fan Speed 1, Fan Speed 2, Fan Speed 3, Dehumidification: 24 Volts AC, 1 Amp at 50 °C, 0.5 Amps at 60 °C, limited by Class 2 supply

Heat Modulation, Cool Modulation, Heat Injection, Cool Injection: 0-10 Volts DC, 2K Ohm minimum

Power

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

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

Recommended Sensor Wire

Maximum Length: 500 feet (152 meters)

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

Recommended LON Bus FTT-10A Network Wire

Speed: 78KBPS

Max Volts: 42.4 Volts DC

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

Mechanical

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

Controller Weight: 0.70 pounds (0.32 kilograms)

Shipping Weight: 1.0 pounds (0.46 kilograms)

Processor: 3150 Neuron 10 MHz

Flash: 48 Kilobytes

SRAM: 8 Kilobytes

Termination: 0.197" (5.0 mm) Pluggable Terminal Blocks, 14-22 AWG

Temperature: 32 °F to 140 °F (0 °C to 60 °C)

Humidity: 0 to 90%, non-condensing

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

FCC Part 15 Class A compliant

CONTROLS MADE EASY®

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