

CHB1 Chilled Beam Ceiling Controller

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

SUPERSEDES: August 15, 2013

Plant ID: 001-4075

EFFECTIVE: January 15, 2014

Job: _____ Engineer: _____

Contractor: _____ Rep: _____

Date: _____ Tag/Item #: _____

CHB1

The CHB1 Chilled Beam Ceiling Controller is a microprocessor-based controller for a single coil operation. This application can operate one LOFlo[®] Block with heating and cooling switchover.

Overview

The CHB1 provides BTU energy monitoring for one Loop with a reversing valve for switching from heating to cooling as well as measurement of Supply Water Temperature, Flow, and Return Water Temperature for the loop. Inputs for Supply Air Temperature, Indoor Air Quality, Occupancy, and Supply Air Humidity are provided. Space Temperature and Space Humidity 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 heating and cooling for a LOFlo[®] Block. A Reversing Valve changes position depending on the mode of operation - heating or cooling.

The CHB1 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
- Reversing valve control for heat/cool switch-over
- 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 and cold supply water
- Individual temperature setpoints for occupied/unoccupied heat and cool

- Supply Air Temperature and Supply Air 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 LC12
- Supervisor control (JENE/Niagara)
- Alarm/Event reporting

SPECIFICATIONS

Electrical Inputs

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

Water Flow, Supply Air Humidity: 0 - 10 Volts DC

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

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

Electrical Outputs

Stage 1, Stage 2, Split Heating, Reversing Valve, 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

Modulation, Injection, Extended Modulation: 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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