FCU4 Fan Coil Unit

Self-Contained Interoperable Controller Model UCP-1 for Software Version 3

SUPERSEDES: New   EFFECTIVE: July 25, 2013

Plant ID: 001-4060

FCU4

The FCU4 Fan Coil Unit is a microprocessor-based controller for four-pipe fan coil units with one coil for heating and one coil for cooling.

Overview

The controller provides BTU energy monitoring for one heating loop and one cooling loop. It also measures supply water temperature, flow, and return water temperature of each loop. Inputs for fan proof, occupancy sensor, and indoor air quality (digital or analog) are also provided. Space temperature and humidity are sensed by a two-wire serial interface to an iWorx® TS 300 series thermostat.

The controller incorporates digital outputs in the form of triacs for three-speed fan operation, two heating stages, and two cooling stages. The heating and cooling stages may also be configured for floating setpoint operation.

The controller also incorporates 0-10VDC outputs for damper modulation, fan modulation, and cold/hot water modulation.

Features

- Two stages of cooling or floating point or 0-10 VDC
- Modulated control with digital enable signal for cooling
- Two stages of heating or floating point or 0-10 VDC
- Modulated control with digital enable signal for heating
- Three-speed fan control
- Modulated fan control
- User configured combination of digital and analog fan control
- Fan control energized on call for heating, cooling, IAQ and dehumidification
- Fan status input for additional safety interlocks
- Damper modulation to control two speeds of air velocity
- Dehumidification (cooling coil must be upstream of heating coil)
- External Dehumidification
- Optional BTU energy monitoring
- Optional Water Flow metering
- IAQ detection, configurable for digital or analog sensors
- Individual temperature setpoints for occupied/unoccupied heat and cool
- Thermostat with space temperature, space humidity, setpoint adjust, fan override, occupancy override
- Optional use of Precon type III temperature sensor for controlling to duct temperature
- Commissioning mode for direct control
- Automatic Calibration of Air Flow Constant (K)
- Calculation of Air Flow Constant (K) from Sensor gain and duct cross sectional area
- LonWorks interface to building automation systems and host products
- Automatic configuration with the LCI2

- Datapoints exposed through network variables
- Alarm/Event reporting

SPECIFICATIONS

Electrical Inputs

Hot Supply Water Temperature, Hot Return Water Temperature, Cold Supply Water Temperature, Cold Return Water Temperature: 0-10 VDC VFTS/VTS, RTD Sensor, Precon Type II or III 10K Thermistor

Cold Water Flow, Hot Water Flow, Differential Pressure: 0-10 Volts DC

Occupancy Sensor, Fan Proof Sensor: Dry Contact, Normally Open, 5 Volts DC Max

IAQ Sensor - can be configured as one of the following: Dry Contact, Normally Open, 5 Volts DC Max; or 0-10 Volts DC

Electrical Outputs

Heat Modulation, Cold Modulation, Fan Modulation, Damper Modulation: 0-10 Volts DC, 2K Ohm minimum

Cooling Stage 1 / Cooling FSP Open / Cooling Enable, Cooling Stage 2 / Cooling FSP Close, Heating Stage 1 / Heating FSP Open / Heating Enable, Heating Stage 2 / Heating FSP Close, Fan 1 / Fan Enable, Fan 2, Fan 3, External Dehumidification: 24 Volts AC, 1 Amp at 50 °C, 0.5 Amps at 60 °C, limited by Class 2 supply

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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