

DXUV Universal Air Control - Single Zone VAV Controller ***Self-Contained Interoperable Controller Model UCP-1 for Software Version 2***

SUPERSEDES: New

Plant ID: 001-4212

EFFECTIVE: May 14, 2014

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

DXUV

The DXUV Single Zone VAV controller is designed as a single zone controller capable of supplying conditioned air to a Space. It can alternately be associated to a BZU3 and provide conditioned air to multiple spaces.

Overview

Digital inputs are provided for fan status, mixed air low limit status, smoke detector and filter status. Analog inputs are provided for supply, return and mixed air temperatures. Indoor Air Quality may be defined by the user as analog or digital. Zone temperature and humidity may be sensed by a two wire serial interface to an iWorx TS300 series thermostat. An analog (0-10V) input is provided for differential pressure for reading air flow rate. The same DP input may be alternatively configured as a flow or velocity input.

Zone temperature and zone humidity are sensed by a two-wire serial interface to an iWorx® TS302/TS304/TS306 thermostat. Alternatively, the controller may be associated with a BZU3 with zone temperature, setpoints, hvac mode and fan mode communicated from the BZU3. When the DXUV is associated to a BZU, the DXUV's stat input may be configured as a space humidity input. If dehumidification isn't used and the Free Cooling type is not configured to Rtn Air Humidity, then the STAT input may also be configured for a thermistor input (TS100).

The controller incorporates digital output triacs for fan enable, two stages of heating, two stages of cooling, a humidifier and dehumidification reheat floating point valve (open/close). In addition, analog outputs are provided for a modulating fan, modulating economizer and modulated heating and cooling.

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

Features

- Space temperature controlled by fan modulation with fan enable
- Modulated economizer minimum position and flow rate
- Two stages of cooling, or a floating point cooling valve, or a modulated cooling valve
- Two stages of heating, or a floating point heating valve, or a modulated heating valve
- One heating stage and one cooling stage may be designated as a modulating stages
- Heating and cooling setpoints defined by outside air temperature reset curve
- Humidification
- Dehumidification with heat, Dehumidification with reheat
- Economizer enabled based on enthalpy or dry bulb calculations
- Optional calibration of air flow (differential pressure) sensor
- Runtime accumulation for heating, cooling and fan
- Individual temperature setpoints for occupied/unoccupied heat and cool
- Time proportioned control of the staged outputs to reduce cycling
- Proportional + Integral control of the modulated fan and modulated heating and cooling

- Thermostat with space temperature, space humidity, setpoint adjust, fan override, occupancy override
- Supports association with BZU3 Hydronic Zone Controller
- Local backup schedule
- Minimum cycle timer
- Mixed air low limit protection
- Filter status, fan proof, and smoke detection inputs
- Fan control energized on call for heating or cooling
- IAQ compensation based on IAQ input
- Outside Air Temperature Cutoffs
- Supply Air Temperature cooling limit
- Automatic heat/cool changeover
- Automatic configuration with the LCI
- Alarm/Event reporting
- Real-Time Clock
- LONWORKS® interface to building automation systems

SPECIFICATIONS

Electrical Inputs

Resolution: 10 bit

Humidity Inputs (SAH, RAH): Analog, 0-10 Volt

Air Temperature (SAT, RAT, MAT): Precon Type III 10K thermistor

Fan Proof (FNP): Dry Contact, Normally Closed

Digital Switch Inputs (FIL, MLL, SMK): Dry Contact, Normally Open

Indoor Air Quality (IAQ) Options:

- Dry Contact, Normally Open
- Analog, 0-10 Volt

Differential Pressure (DP) Options:

- Analog, 0-10 Volt, Flow Rate
- Analog, 0-10 Volt, Velocity Rate
- Analog, 0-10 Volt, Differential Pressure

Thermostat (STAT) Options:

- 10 Volt nominal, limited to 0.04 A - TS300 Series thermostat
- Precon Type III 10K thermistor
- Analog, 0-10 Volt - humidity sensor

Electrical Outputs

Humidifier (HDFR), Fan Enable (FAN), Heating/Cooling Stages (H1, H2, C1, C2), Reheat Valve Open/Close (RVO, RVC): 24 Volts AC, 1A @ 50C, 0.5A @ 60C, limited by the Class 2 supply rating

Modulated Fan (FANM), Modulated Heating/Cooling (HTGM, CLGM), Modulated Economizer (ECNM): 0-10 Volts DC, 2K Ohm minimum load, 8 bit resolution

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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