

Suggested Specifications

VAV DDC Pressure Controller with Low Flow/Expanded Range Transducer

Division 23 – Heating, Ventilating, and Air Conditioning

Section 23 09 00 – Instrumentation and Control for HVAC

The following specification is for a defined application. Price would be pleased to assist in developing a specification for your specific need.

PART 1 – GENERAL

1.01 Section Includes

- A. VAV DDC Pressure Controller.

1.02 Related Requirements

- A. Section 01 40 00 - Quality Requirements
- B. Section 01 78 00 - Closeout Submittals
- C. Section 01 79 00 - Demonstration and Training

1.03 Reference Standards

- A. All referenced standards and recommended practices in this section pertain to the most recent publication thereof, including all addenda and errata.
- B. BACnet International – Building Automation and Control networks: communications protocol for building automation control networks that leverage the ASHRAE, ANSI and ISO standard protocols.
 - 1. ANSI/ASHRAE Standard 135.1 – Method of Test for Conformance to BACnet.
 - 2. ISO 16484-5 – Building Automation and Control Systems: Data communication protocol.
- C. BTL – BACnet Testing Laboratories.

1.04 Documentation

- A. The manufacturer shall provide documentation for each device to address typical wiring, sequence of operation, physical dimensions of components and installation procedures and requirements.

1.05 Quality Assurance

- A. The manufacturer qualifications shall be specified in this section, with minimum ten years of documented experience.

1.06 Warranty

- A. The warranty shall begin upon the date of shipment and continue for a period of 18 months.
 - 1. The warranty shall cover all products from manufacturer defect and shall include any replacement parts only during the coverage period.
 - 2. The manufacturer shall not include the cost of labor to replace or recalibrate, if necessary, any components found to be defective.
 - 3. This warranty does not cover any product failure which results from, either directly or indirectly, any damage which occurs to the device by improper installation or from failure to comply with the preventative maintenance required per the manufacturer's instructions, or by codes set by local or facility authorities.
 - 4. An extended warranty shall be available at additional cost from the manufacturer.
- B. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

Suggested Specifications

PART 2 – PRODUCTS

2.01 Pressure Controller

- A. Basis of Design: Price Industries, Inc.
 - 1. VAV DDC Pressure Controller: Model PCV

2.02 Price Intelligent Controller

- A. Description:
 - 1. Furnish and install Price model [PCV] variable air volume (VAV) pressure controller in the configurations as indicated on the plans to operate as a pressure controller.
 - 2. The VAV pressure controller shall be digital and utilize a microcontroller with Electrically Erasable Programmable Read-Only Memory (EEPROM) for storing setup and calibration variables.
 - a. Indicator light-emitting diodes (LED) shall be on all outputs to indicate current status.
 - b. All connections shall be pluggable terminal blocks and/or RJ-12/RJ-45 jacks for quick field connections.
 - 3. Airflow control using the onboard actuator shall use highly accurate movements based on the current static pressure setpoint. When required, a minimum damper movement of 1000 milliseconds shall be used to reduce actuator wear and increase lifespan, and an adjustable default maximum step of 5000 milliseconds.
- B. Airflow Transducer:
 - 1. The device shall be a digital temperature compensated ultra-low flow through transducer with an operating range of 0 to 2.0 inches water gauge (0 to 500 Pascal).
 - 2. Maximum airflow through the transducer shall be 0.00014 CFM at 0.01 inches water gauge.
 - 3. The device shall maintain an accuracy of plus or minus 4.5 percent of the reading. Sensors rated at plus or minus 5 percent of full scale will not be acceptable.
 - 4. The device must utilize digital sensor technology. Analog output sensors or sensors with an accuracy of less than 4.5 percent of the reading are not acceptable. Sensors with accuracy rated for span are not acceptable.
- C. Actuator:
 - 1. The actuator shall be a 90 second at 60 Hz, 24 Volt AC, tri-state floating point type, with a torque rating of 40 inch-pounds (4.5 Newton-meters), a fully adjustable mechanical stop, and protected against stalling.
 - 2. The actuator shall be factory mounted and be provided with the controller mounted on 94V-0 fire rated plastic.
 - 3. The actuator shall be field replaceable without replacing/reprogramming the VAV pressure controller.
- D. Electrical:
 - 1. The VAV pressure controller shall be factory calibrated and provided with a factory mounted and supplied 120/208/277 Volt AC to 24 Volt AC Class 2 transformer. No on-site sequence programming shall be required.
- E. Interfacing to EMS/BMS/BAS:
 - 1. The VAV pressure controller shall interface with the building management system (BMS) to allow remote monitoring of system static pressure or permit settings adjustments over the building network.
 - 2. The BMS shall use BACnet MS/TP network protocol to view points or status of system static pressure. The use of BACnet protocol shall be native to the device and shall not require the use of an external gateway.
 - 3. An LCD-Setup Tool shall include the ability to change the MAC address, device instance and baud rates (9600, 19200, 38400, 76800) for proper interfacing to BACnet network.
 - 4. The VAV pressure controller shall support on board network termination for the MS/TP network.
 - 5. The VAV pressure controller shall be BTL listed.
 - 6. The manufacturer shall be a member of BACnet International.
 - 7. The static pressure set point and current static pressure value shall be visible from the BACnet network.
 - 8. The BACnet points shall include:
 - a. Device Object.
 - b. Analog Input (AI).
 - c. Analog Output (AO).
 - d. Binary Input (BI).
 - e. Binary Output (BO).
 - f. Multi-state (MSV).

Suggested Specifications

PART 3 – EXECUTION

3.01 Examination

- A. Verify that conditions are suitable for installation.
- B. Verify that field measurements are as shown on the drawings.

3.02 Installation

- A. The mechanical contractor, controls contractor, or factory authorized commissioning contractor shall install and wire the components of the VAV pressure controller. This shall include the thermostat, airflow control devices, and all network wires.
- B. The VAV pressure controller shall have the following cable and wire requirements:
 - 1. Factory supplied 35 foot length of plenum rated (CMP) RJ-45 Cat 5 cable for connecting the LCD-SETUP Tool to the VAV pressure controller.
 - 2. Factory supplied 35 foot length of plenum rated (CMP) RJ-45 Cat 5 cable for connecting the zone controllers (if required).
 - 3. All other cables/wires to be provided by the installing contractor.

3.03 Start-Up and Commissioning

- A. Start-up shall include verifying proper installation, testing and airflow control, setting all parameters and set points, and configuring and verifying network communication, as applicable.
- B. The test and balance (TAB) contractor shall be responsible for final verification of airflow measurement and static pressure setpoint accuracy.

3.04 Field Quality Control

- A. See Section 01 40 00 - Quality Requirements, for additional quality requirements.

3.05 Closeout Activities

- A. The manufacturer or manufacturer's representative shall provide a minimum of four hours of owner training to facilities personnel or other parties as required.
- B. See Section 01 79 00 - Demonstration and Training for additional closeout requirements.