Suggested Specifications

Antec Controls LUME20

Division 23 – Heating, Ventilating, and Air Conditioning
Section 23 09 00 – Instrumentation and Control for HVAC

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

PART 1 - GENERAL

1.01 Section Includes

A. Antec Controls LUME20

1.02 Related Requirements

A. Section 01 30 00 – Administrative Requirements
B. Section 01 40 00 – Quality Requirements
C. Section 01 60 00 – Product Requirements
D. Section 01 74 19 – Construction/Demolition Waste Management and Disposal
E. Section 01 78 00 – Closeout Submittals
F. Section 01 79 00 – Demonstration and Training

1.03 Reference Standards

A. All referenced standards in this section pertain to the most recent publication thereof, including all addenda and errata.
B. BTL – BACnet Testing Laboratories.
C. ISO 9001 - Quality Management Systems – Requirements.
D. ISO/IEC 17025 - General Requirements for the Competence of Testing and Calibration Laboratories
E. NEC - National Electric Code.
F. NIST – National Institute of Standards and Technology.
G. UL 916 - Standard for Energy Management Equipment.

1.04 Administrative Requirements

A. Pre-installation Meeting: The contractor shall conduct a pre-installation meeting prior to the start of the work of this section, and require attendance by all affected installers.

1.05 Submittals

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
B. Product Data shall be provided with data indicating configuration, materials used in fabrication, overall dimensions, electrical characteristics and connection requirements.
C. Documentation shall be issued displaying the BTL mark to certify that the monitoring device has completed BTL approved conformance testing.
D. Manufacturer's Installation Instructions shall indicate support and hanging details, installation instructions, recommendations, and service clearances required.
E. Project Record Documents shall record actual locations of units and controls components and locations of access doors.
F. Operation and Maintenance Data shall include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts lists.
G. Manufacturer’s warranty shall be submitted and ensure forms have been completed in the Owner's name and registered with manufacturer.
H. Maintenance Materials shall be furnished for the Owner's use in maintenance of the project.
    1. See Section 01 60 00 - Product Requirements, for additional provisions.

1.06 Warranty

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
B. Provide 24-month manufacturer warranty from date of shipment.

PART 2 – PRODUCTS

2.01 Manufacturer

A. Basis of Design: Antec Controls
   1. Room Pressure Monitor: LUME20

B. Acceptable Manufacturers:
   1. The plans and specifications for the pressure monitors are based on systems and equipment manufactured by Antec Controls.
   2. The pressure monitor provider shall be an entity that designs, develops, manufactures and sells products and services to control and monitor the environment, airflow, and pressure of critical spaces using a Quality Management System registered to ISO 9001.
   3. In strict accordance with this specification, alternative pressure monitors and equipment shall only be considered for approval provided that the equipment is equal in every respect to the operational characteristics, capacities and intent of control sequences specified herein. Approval to bid does not relieve the pressure monitor supplier from complying with the minimum requirements or intent of this specification.
   4. Manufacturers submitting as alternate suppliers shall be in compliance with the Proposed Alternate Equipment described in Section 2.01 C.
   5. Other acceptable manufacturers can be submitted provided they meet the specifications.
   6. The engineer and owner shall be the sole judges of quality and equivalence of equipment, materials, methods and life cycle cost.
   7. Only those systems specifically named in this specification or by addendum shall be considered for approval. Other systems submitted after the bid opening shall be returned without review.

C. Proposed Alternate Equipment:
   1. Equipment:
      a. The pressure monitor supplier shall provide a detailed proposal describing all elements of the pressure monitors. A schematic layout shall be provided, showing relations of the elements therein, and a description of how they interact.
      b. Technical specification data sheets shall be provided for all proposed system components and devices.

D. Compliance Schedule:
   1. Any alternate pressure monitor supplier shall provide a separate compliance schedule, which shall include the section, paragraph and subparagraph of these specifications, and a direct statement to indicate compliance or noncompliance with the requirements. For all areas of noncompliance, the supplier shall describe what specific and alternative approach has been taken and document the impact this will have on the maintenance of the building.

E. Factory Supplied Documentation:
   1. The manufacturer shall provide documentation for each device to address typical wiring, sequence of operation, physical dimensions of components, and installation procedures and requirements.

F. Warranty:
   1. The warranty shall begin upon the date of shipment and continue for a period of two years. The warranty shall cover all products from manufacturer defect and 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. The warranty shall 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.

Suggested Specifications

2.02 LUME20: Room Pressure Monitor

A. Description:
1. Furnish and install Antec Controls model LUME20 in the quantities and configurations as indicated on the plans.
2. The Room Pressure Monitor shall be an electronic device utilizing a flow-through style sensor, furnished and installed to measure differential room pressure between adjacent spaces and display the information on a digital interface mounted outside the critical space.

B. Construction:
1. Digital Display Unit:
   a. The device shall be wall mounted in close proximity immediately outside the space being monitored.
   b. Each monitor shall have a 4.3 inch thin-film-transistor (TFT), dimmable, full-color touch-screen display with a 480 x 800 resolution.
   c. The display shall include additional light emitting diode (LED) status indication light bars on the sides of the device to ensure room status conditions are visible across a 180 degree viewing angle. Room status indication lights that are only visible from the face or across viewing angles of less than 180 degrees shall not be acceptable.
   d. The device must utilize a password-protected menu format to permit access for programming or setpoint changes. Different levels of secure access shall be available using different passwords.

2. Room Pressure Sensor:
   a. The Room Pressure Monitor will have the capability to connect with up to three room pressure sensors.
   b. The device shall be mounted above the door separating the spaces for which differential room pressure is being measured.
   c. The sensor shall include cover plates on both sides of the wall for protection from drafts and/or cleaning solvents.
   d. The sensor shall maintain an accuracy of ±3% of reading. Sensors with accuracy rated as a percentage of full scale shall not be acceptable.
   e. The sensor shall be capable of monitoring pressure from -0.25 to +0.25 in.w.c.
   f. The device must utilize digital sensor technology. Flutter strips, ball-in-tube monitors or similar approaches that do not display actual quantitative differential room pressure information are not acceptable.
   g. Sensor drift shall be less than 0.0004 in.w.c. (0.1 Pa) per year. Sensors with yearly drift specified as a percentage of their full scale range shall not be acceptable.
   h. The sensor element shall be constructed in such a way that it is protected from the effects of dust or lint. Sensors with elements exposed to the airstream are not acceptable.

1. Alarm:
   a. The monitor shall include the ability for both audible and visual alarming during a user defined event, including low pressure, high pressure, emergency condition, and door status.
   b. The alarm shall incorporate a user defined delay between time when the alarm set-point is met and when the alarm initiates.
   c. The monitor shall include a mute button which, when depressed during an alarm event, shall disable the audio alarm for a user defined length of time.

2. Door Switches [**Optional**]:
   a. Magnetic door switches shall be utilized to prevent nuisance alarms during room cleaning, patient transfer, or other situations requiring door(s) to be kept open for extended periods of time.
   b. The door switches shall be wired directly to the room pressure monitor, and the alarm delay duration shall be field adjustable through the service menu on the monitor display interface.

C. Building Management System Interface:
1. The room pressure monitor shall interface with the building management system (BMS) to allow remote monitoring of room parameters or permit settings adjustments over the building network.
2. The BMS shall use either analog inputs, digital inputs, or utilize BACnet network protocol to view points or status of the room being measured. The use of BACnet protocol shall be native to the device and shall not require the use of an external gateway.
3. The monitor shall include the ability to change MAC address, device instance, and baud rate (9600, 19200, 38400, 76800) for proper interfacing to BACnet network.
4. The manufacturer shall be a member of BACnet International and the monitor shall be BTL listed.

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 room pressure monitor. This includes the display unit, the control board (if applicable), transformer, room pressure sensor(s), nylon tubing for sensor(s), all options and accessories including door switches, nurse station monitors, airflow control devices and network wires.
B. Cable/wire Requirements:
    1. All other cables/wires shall be provided by the installing contractor and shall meet the requirements set by the manufacturer.

3.03 Start-up and Commissioning

A. Start-up shall include verifying proper installation, testing and calibrating pressure sensor(s), setting all parameters and alarm set points, configuring and testing remote station (if applicable) and verifying network communication (if applicable).
B. The Test and Balance (TAB) contractor shall be responsible for final verification of room pressure measurement.

3.04 Field Quality Control

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

3.05 Cleaning

A. See Section 01 74 19 - Construction Waste Management and Disposal for additional cleaning requirements.

3.06 Closeout Activities

A. The manufacturer or the manufacturer's representative shall provide a minimum of two hours of owner training to facilities personnel or other parties as required
B. See Section 01 78 00 - Closeout Submittals for closeout submittals.
C. See Section 01 79 00 - Demonstration and Training for additional closeout requirements.

END OF SECTION 23 09 00