

SECTION 23 09 00 – BUILDING AUTOMATION SYSTEM AND CONTROL FOR HVAC

This is supplemental language for a spec. This is not an all inclusive spec. This is language that is meant to be copied and pasted into an existing spec.

PART 1 - GENERAL

PART 2 - PRODUCTS

2.1 BAS SENSING DEVICES

A. CONDENSATION MONITOR

1. General Specifications
2. Provide an electro-mechanical device to sense condensation on bare pipes and output a signal to an input on a controller.
3. The monitor shall be specifically designed for condensation monitoring.
4. The device shall have an integrated circuit board sensor that is factory calibrated at the switch point and does not allow field calibration.
5. The device shall not allow setpoint or switch point adjustment.
6. RH transmitters that rely on field programming, adjustments, and calibration shall not be acceptable.
7. The monitor shall anticipate the condensation condition by approximately 2F dew point. Condensation sensors that signal based on actual condensation shall not be allowed.
8. The switch shall automatically reset when the condition no longer exists.
9. Provide a water and dust resistant housing to prevent condensation and dust damage to the electronics and connections.
10. Exposed sensors with exposed wires shall not be acceptable.

B. Acceptable Manufacturers and part numbers:

1. Siemens QXA2000

C. Sensing Specifications

1. Operating specifications
 - a. Operating Range: -23F to 123F, 5 to 95% RH (non-condensing inside housing)
 - b. Switch point: 95% +/- 4% RH
 - c. Switch differential: 5%RH
 - d. Response time: 3 minutes max
2. Set Point Adjustment Range: None
3. Calibration Adjustments: None required
4. Power: 24V AC or DC
5. Frequency: 50/60 Hz
6. Power Consumption: Max 1A
7. Provide a device that meets international standards for product safety and electromagnetic compatibility.

D. Installation:

1. The monitor shall strap on to bare pipe. Provide mounting straps for pipe sizes including ½” to 3.5” (10 to 100mm).
2. The monitor shall allow surface mounting on walls, ceilings, radiant panels or chilled sails. Provide mounting screws and pre-drill mounting slots on the housing.
3. Provide a metallic cable connector integral to the housing.
4. Coordinate with the insulation contractor for 6” of bare pipe at the location of the sensing.
5. Provide a wiring terminal strip in the housing to minimize wire nut connections
6. If wire nut connections are needed, then all wire nut connections shall be housed in an electrical box and wires shall be secured on both sides to prevent wire strain on the wire nut connection. Tape all wire nut connections.
7. Mount monitors according to the architectural and engineering plans.
8. If mounting locations are not given on the plans, then mount according to the following:
9. Mount monitors on the cold side of the chilled water pipe before it enters the equipment.
10. Where pipes are run in the exposed space, mount the sensor on the pipe in the space so that it senses the conditions of the room at the pipe location.
11. Where pipes are concealed, but monitoring is needed, mount the monitors at a location that represents the conditions where protection is needed.
12. Mount monitors in the least visible location possible. If monitors are visible by occupants, then submit locations to the architect for approval.
13. Locate the switch downstream of the control valve.

E. Commissioning:

1. No special commissioning procedure is required. A functional test can be made by exhaling slowly onto the sensing element several times, thus simulating condensation.

F. Sequences of Operation: Unless otherwise noted on the drawings or in the Sequences of Operations section, provide the following:

1. The condensation monitor shall be hardwired to stop the flow that causes the out-of-normal condition.
2. When the monitor signals a condensation warning condition, annunciate an alarm at the BAS.
3. Provide an interposing relay if necessary such that one condensation monitor can hardwire a signal to close the water supply valve and input an alarm to the BAS.