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Viconics Zoning Thermostat Controller Engineering Specifications Guide

Engineering Guide Specifications Zoning Thermostat-Controller
Viconics Inc. January 2009

The zoning thermostat-controller shall be low-voltage and microprocessor based capable of on/off, floating, or 0-10Vdc analog control. The thermostat-controller shall operate in a stand-alone mode and be capable of BACnet MSTP communications, Echelon Lontalk communications, or Zigbee wireless communications. The thermostat-controller shall be manufactured within a certified ISO 9001 and ISO 14001 facility and must have UL 873 and CSA C22.2 No. 24 listings, and be FCC Compliant to CFR 47, Part 15, Subpart B, Class A. Zigbee Wireless communicating models must be FCC compliant to Part 15, Subpart C.

- Thermostat-controller shall be pre-programmed, containing all required I/O to accomplish local HVAC temperature control for cooling only, heating only, cooling with reheat, heating with reheat, cooling and heating, or cooling and heating with reheat as required.
- Thermostat-controller shall be provided with two (2) floating or two (2) analog proportional-integral control outputs. Thermostat-controller shall have integrated changeover function, which will allow seamless switching between cooling and heating mode based upon temperature or a network value input.
- Thermostat-controller shall achieve accurate temperature control using a PI proportional-integral algorithm. Differential-based thermostat-controllers are not acceptable. Thermostat-controller shall have an adjustable deadband.
- Thermostat-controller shall have the capability for a remote temperature sensor that will replace the on-board temperature sensor, and to be used for remote averaging multiple temperature sensors.
- Thermostat-controller shall be capable of local or remote override during unoccupied mode. The thermostat-controller shall resume occupied setpoints and will revert back to unoccupied setpoints after a set time

adjustable from 0 to 24 hours. Thermostat-controller shall also have configurable temporary or permanent local override setpoints. When the "temporary setpoints" mode is enabled, once the temporary occupancy timer expires, the setpoints will revert back to their default values. Thermostat-controller shall have adjustable local unoccupied heating and cooling setpoint limits as well as maximum heating and minimum cooling limits.

- Thermostat-controller shall also provide; (2) additional configurable inputs for remote night setback, occupancy sensing, door contact, remote override, or filter alarm as required. (1) additional configurable input for dry contact or analog sensor changeover, or for other temperature sensor monitoring as required. (1) configurable auxiliary output to be used for heating or local digital output.

- Thermostat-controller shall be equipped with 2-line, 16-character LCD dual intensity backlit display with two status LEDs for heating or cooling mode, and be capable of displaying temperatures in Celsius or Fahrenheit.

- Thermostat-controller shall utilize EEPROM memory to back up local configuration parameters in the event of power failure. Thermostat-controllers requiring batteries, or have no provisions for retention during loss of power shall not be acceptable.

- Thermostat-controller shall have (4) adjustable keypad lockout levels limiting access to changes of occupied and unoccupied setpoints.

- Thermostat-controller shall be provided with intelligent HMI and have an embedded local "real text" configuration utility for simplified sequence selection, start-up and configuration using an integrated three-button keypad. Thermostat-controllers requiring external configuration tools or network interface for start-up and configuration are not acceptable.

- Thermostat-controller shall display services as are available through a local digital input or network layer such as; Outdoor air temperature display when outdoor air temperature network variable is received, "Stand-by time" and "Stand-by setpoint" parameters available only when an occupancy sensor cover is connected, and COM Address and various other parameters when a communication module is integrated inside the unit.

- Thermostat-controller supplied with BACnet MSTP shall be provided with Protocol Implementation Conformance Statement or LonMark approval disclosing all object/SNVT properties and instance numbers to facilitate the integration process. Echelon-Lontalk Communicating versions shall be provided with appropriate application files and LNS plug-in as required free of charge from the manufacturer.

- Option: Thermostat-controller shall be capable of advanced active occupancy logic. The thermostat-controller shall be supplied with (or capable of being retrofitted on site for future occupancy sensing) with an occupancy sensing cover. A passive infrared sensor shall be integrated into the cover of the thermostat-controller. Control packages with remote motion detectors are not acceptable. The advanced active occupancy logic shall add a third level of occupancy, "Stand-by" in between "Occupied" and "Unoccupied". Thermostat-controller shall have an adjustable "Stand-by timer" integrated to change the occupancy mode from "Occupied" to "Stand-by" if no motion is detected. Additionally, the thermostat-controller shall drop from "Stand-by" mode to "Unoccupied" if no motion is detected for a certain amount of time during "Stand-by" mode. Both timers are adjustable. "Stand-by" mode shall have adjustable heating and cooling setpoints. Stand-by setpoints are intended to be set a few degrees less or more than "Occupied" setpoints to ensure a quick recovery to "Occupied" setpoints when motion is detected. Controls with motion detectors that only switch from "Unoccupied" mode to "Occupied" mode without a stand-by mode are not acceptable.

Thermostat-controllers shall be Viconics model VT7200 Series or equivalent.

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