SECTION 23 09 23

DIRECT-DIGITAL CONTROL SYSTEM FOR HVAC

Major Equipment Specified in this section:

Heating and Cooling Thermostat: Crestron CHV-TSTATEX-FCU

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DIRECT-DIGITAL CONTROL SYSTEM FOR HVAC

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1. GENERAL
	1. SUMMARY
		1. Section Includes
			1. Heating and Cooling Thermostat with wireless control processor communication capability. Thermostat integrates with control processor and networked BACnet IP servers and devices for a complete automated system.
		2. Related Requirements:
			1. Section 12 24 13 Roller Window Shades
			2. Section 25 08 00 Commissioning of Integrated Automation
			3. Section 25 10 00 Integrated Automation Network Equipment
			4. Section 25 11 13 Integrated Automation Network Servers
			5. Section 25 13 13 Integrated Automation Control and Monitoring Network Supervisory Control
			6. Section 25 13 19 Integrated Automation Control and Monitoring Network Interoperability
			7. Section 25 15 16 Integrated Automation Software for Control and Monitoring Networks
			8. Section 25 50 00 Integrated Automation Facility Controls
			9. Section 26 05 00 Common Work Results For Electrical
			10. Section 26 27 26 Wiring Devices
			11. Section 26 51 00 Interior Lighting
			12. Section 27 15 00 Communications Horizontal Cabling
			13. Section 27 41 00 Audio-Video Systems
2. PRODUCTS
	1. HEATING AND COOLING THERMOSTAT
		1. Manufacturers

Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products of **Crestron Electronics, Inc., Rockleigh, NJ 07647**, Phone (800)237-2041, Fax: (201)767‑1903, [www.crestron.com](http://www.crestron.com) **[**or comparable products from a single manufacturer approved by Architect prior to bidding**]**, with the following components and characteristics.

* + 1. Basis of Design Product:
			1. Crestron CHV-TSTATEX-FCU
		2. Minimum Characteristics:
			1. Four pipe fan coil system control:
				1. Relay control of heat pipe and cool pipe valves.
				2. Relay control of High/Medium/Low fan speeds.
			2. Automatic fan mode.
			3. Automatic heating and cooling mode.
		3. Communication:
			1. Bidirectional wireless communication capability with any or all of the following:
				1. Control processor
				2. Control processor and integrated BACnet devices.
				3. Control processor and networked management servers.
		4. Mounting
			1. 1-gang horizontally mounted standard electrical box.
	1. SYSTEM FUNCTIONS
		1. Control Functions:
			1. Heating and cooling operation modes:
				1. Off
				2. Heat
				3. Cool
				4. Auto
			2. Fan speed:
				1. Auto
				2. High
				3. Medium
				4. Low
		2. Climate control functions:
			1. Separate heating and cooling set points.
			2. Adjustable anticipators.
			3. Increase circulation continuous fan operation mode.
		3. Temperature sensors.
			1. Built-in temperature sensor.
			2. Support for two remote temperature sensors.
		4. Operation modes:
			1. Stand-alone
			2. Separate master control processor integration.
			3. Fail-safe mode – master controller integrated with stand-alone as secondary mode.
	2. USER INTERFACE
		1. Controls
			1. Operation mode select.
			2. Fan speed select.
			3. Temperature set point.
		2. Built-in LCD status display
			1. Current Temperature.
			2. Set Point Temperature.
			3. System Mode.
			4. Fan Indicator.
	3. INTEGRATION AND COMMUNICATION
		1. Direct Communication:
			1. The thermostat shall be capable of communicating wirelessly with a master control processor using a single native communication protocol. Protocol translators, and protocol adaptors, shall not be permitted.
		2. BACnet IP Integration:
			1. The thermostat and control processor shall be capable of bidirectional BACnet IP communications with networked BACnet IP devices and equipment.

END OF SECTION 23 09 23