SIEMENS

Technical Specification Sheet
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BACnet PTEC Unit Conditioner Controller

The BACnet PTEC Unit Conditioner Controller - Electronic Output provides high performance Direct Digital Control (DDC) of pressure-dependent terminal boxes, fan coil units, and unit conditioners.

The BACnet PTEC Unit Conditioner Controller - Electronic Output can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

Features

- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks.
- BTL listed as a B-ASC device.
- Auto-discovery and Auto-addressing over entire MS/TP network.
- Programmable using PPCL.
- Setpoints and control parameters assigned and changed locally or remotely.
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM)—no battery backup required.
- Returns from power failure without operator intervention.
- No calibration required, thereby reducing maintenance costs.
- Advanced digital room unit for temperature, CO_2, and relative humidity.
- Support analog or digital room units with relative setpoint adjustment and either absolute or warmer-cooler setpoint adjustments.
- Applications in 550-496PA include a user-adjustable temperature offset for the room temperature reading when required for validation purposes.
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control.
- Unique control algorithms for specific applications.
- Plenum rated controller.
- User adjustable offset for the room temperature reading when required for validation purposes.

Applications

Pressure Dependent Terminal Boxes

- Cooling or Heating (Application 6642)
- Cooling and Hot Water Heat (Application 6643)

Fan Coil / Unit Conditioners

- Two-pipe Cooling or Heating with additional Hot Water Coil (Application 6644)
- Cooling and Heating (Application 6645)
- Two-stage Cooling and Electric Heat (Application 6646)
- Two-stage Cooling and Hot Water Heat (Application 6647)
- Cooling and Electric Heat or VAV Pressure Dependent with Electric Heat (Application 6648)
- Slave Mode (Application 6691)

Control algorithms are pre-programmed. The controller is ready to operate after selecting the

application. If desired, the operator may adjust the room temperature setpoints and other parameters. The controller is designed for operation and modification without vendor assistance.

If required, new custom code using PPCL programming language can be added to replace or supplement the standard application residing in the controller. This provides the flexibility to meet many job specifications with the assurance of having a proven and tested standard application to rely upon.

Hardware

Controller Board

The BACnet PTEC Unit Conditioner Controller - Electronic Output consists of an electronic controller assembly.

This controller provides all wiring terminations for system and local communication and power. The cable from the room sensor (purchased separately) connects to an RJ-11 jack on the controller. All other connections are removable terminal blocks. The controller assembly is mounted on a plastic track that mounts directly on the terminal box.

An optional enclosure (P/N 550-002) protects the controller assembly.

The controller interfaces with the following external devices:

- Floating or analog (0-10 Vdc) control valve and damper actuators
- Temperature sensors (room, pipe, and duct)
- Service and commissioning tools
- Digital input devices (dry contacts from motion sensors, alarm contacts, switches)
- Digital output devices (fan speeds, stages of heat, stages of cooling, 2 position valves, floating control actuators)

Combination Temperature, Carbon Dioxide, and Relative Humidity Models

The Series 2200/2300 range of BACnet Programmable TEC (PTEC) room units includes temperature only or combination temperature/humidity, temperature/CO2, or temperature/CO2/humidity models. For these models, all measurement variables—CO2, temperature and relative humidity values—are passed digitally to the PTEC. This information is passed from the room unit through the RJ-11 cable to the RTS port on the PTEC.

NOTE:
A CO2 power module (product number AQM2200) is also needed for the CO2 sensor option to function.

Unit Conditioner Controller Specifications

Dimensions	4-1/8" W × 11-1/4" L × 1-1/2" H
Weight	approx. 3 lbs (1.35 kg)
Controlled Temperature Accuracy, Heating or Cooling	±1.5°F (0.9°C)

Power Requirements	
Operating Range	24 Vac +/-20%, 50 or 60 Hz
Power Consumption	7 VA (plus 12 VA per DO)

Inputs	
Analog	1 room temperature sensor *(Optional)* 1 Humidity sensor *(Optional)* 1 CO2 sensor *(Optional)* 1 setpoint 2 auxiliary temperature sensors (10K/100K Ω thermistor) 1 selectable 0-10 Vdc/4-20 mA
Digital	2 dry contacts

Outputs	
Analog	3 0-10 Vdc, 5 mA maximum
Digital	8 DO 24 Vac optically isolated solid state switches @ 0.5 amp

Communications	
Remote	BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk
Local	WCIS and PTEC Tool

Ambient Conditions	
Shipping & Storage Temperature	-13°F to 158°F (-25°C to 70°C)
Operating Temperature	32°F to 122°F (0°C to 50°C)
Humidity Range	5% to 95% rh (non-condensing)

Agency Listings	
UL Listing	UL 916, PAZX
cUL Listed	Canadian Standards C22.2 No. 205-M1983, PAZX7
FCC Compliance	47 CFR Part 15
BTL Listed	as a B-ASC device

Product Ordering Information

Description	Product Part Number
BACnet PTEC Unit Conditioner Controller - Electronic Output	550-496PA
Large enclosure for electronic controller without damper actuator (long board).	550-002

Document Information

Technical Specification Sheets/Technical Instructions	Document Part Number
BACnet Protocol Implementation Conformance (PIC) Statement	149-1033
Room Temperature Sensors – Series 2200	149-601/149-820
Room Temperature Sensors – Series 2300	149-600/149-321
AQM2200 Power Module	129-111
Series 2200 Carbon Dioxide Room Units	129-609
Series 2300 Carbon Dioxide Room Units	129-608
Duct Temperature Sensor	149-134P25
Low Limit Detection Thermostat	155-016P25
Analog Sensors – 10K/100K Ohm Thermistor	149-262/149-982
Siemens Valves	**Document Part Number**
599 Series Zone Valves 2-Way, 3-Way Zone Valve Electric	154-034
599 Series Zone Valves and Actuators – Modulating, On/Off Spring Return, 2-Position Control	154-063

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