SIEMENS

Technical Specification Sheet
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Siemens BACnet Programmable TEC Unit Vent Controller

The Siemens BACnet PTEC Unit Vent Controller provides high performance Direct Digital Control (DDC) technology for room temperature control in unit ventilators. The Unit Vent Controller and related components provide an electronic control system. The Siemens BACnet PTEC Unit Vent Controller 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. The electronic approach to temperature control includes the following features.

Features

- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks.
- BTL listed as a B-ASC device.
- 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.
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control.
- Unique control algorithms for specific applications.
- Control capable of modulating 0-10V valve actuators and damper actuators.
- Optional Temperature Offset.

Applications

- Slave Mode (Application 6595)
- Heating and/or Chilled Water Cooling, ASHRAE Cycles I and II (Application 6575)
- Heating and/or Chilled Water Cooling, ASHRAE Cycle III (Application 6576)
- Heating and DX Cooling, ASHRAE Cycles I and II (Application 6577)
- Heating and DX Cooling, ASHRAE Cycle III (Application 6578)
- Nesbitt Cycle W (Application 6579)

Heating can be provided by hot water, steam or electric heat while cooling can be chilled water or DX coils.

Control algorithms are preprogrammed. 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 our 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 Siemens BACnet PTEC Unit Vent Controller 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 unit ventilator. An optional enclosure (P/N 550-002) protects the controller assembly.

The controller interfaces with the following external devices:

- 0-10V Damper Spring Return Actuator
- 0-10V Valve Spring Return Actuator
- Temperature sensors (room and averaging)
- Portable Operator's Terminal
- DDC Automation Systems
- Digital input devices (dry contacts from motion sensors, alarm contacts)
- Digital output devices (fan, stages of electric heat, DX cooling, 2 position valves)

Room Sensor

The room sensor connection to the controller board consists of a quick-connect RJ-11 jack. This streamlines installation and reduces controller start-up time.

Combination Temperature and Relative Humidity Models

The Series 2200 range of TEC room units includes combination temperature and humidity models. For these models, both temperature and relative humidity values are passed digitally to the TEC. This information is passed from the room unit through the RJ-11 cable to the RTS port on the TEC. See the *Series 2200 Temperature Room Units for TEC and ATEC Technical Specification Sheet* (149-820), for more information.

Unit Vent 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	19.2 to 27.6 Vac, 50 or 60 Hz
Power Consumption	10 VA (plus 12 VA per DO)

Inputs	
Analog	1 room temperature sensor 1 setpoint (optional at RTS) 2 auxiliary temperature sensor (10k thermistor) 1 selectable 0-10 Vdc/4-20 mA
Digital	2 dry contacts

Outputs	
Analog	3 0-10 Vdc
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	
Storage Temperature	-40°F to 167°F (-40°C to 75°C)
Operating Temperature	32°F to 122°F (0°C to 50°C)
Humidity Range	0% to 92% (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
Siemens BACnet PTEC Unit Vent Controller	550-493P
Large enclosure for electronic controller without damper actuator (long board).	550-002

Document Information

Technical Specification Sheets/Technical Instructions	Document Part Number
Room Temperature Sensors – Series 2200	149-820
Duct Temperature Sensor	149-134P25
Low Limit Detection Thermostat	155-016P25
Analog Sensors – 10 K Ohm Thermistor	149-912, 149-915, and 149-916
Siemens Valves and Electronic Actuators	
599 Series Zone Valves 2-Way, 3-Way Zone Valve Electric and Thermic Actuators	155-034
599 Series Zone Valves and Actuators – Modulating, On/Off Spring Return, 2-Position Control	155-063

Siemens Industry, Inc.
Building Technologies Division
1000 Deerfield Parkway
Buffalo Grove, IL 60089-4513
USA
+1 847-215-1000

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BACnet Protocol Implementation Conformance Statement

Products

Product	Model Number	Protocol Revision	Software Revision	Firmware Revision
Siemens BACnet PTEC Unit Vent Controller	550-493P	Revision 4 (135-2004)	2.0.5.1	BE43

Date Tested: July 2011 – B-ASC

Vendor Information

Siemens Industry, Inc.
Building Technologies Division
1000 Deerfield Parkway
Buffalo Grove, IL 60089

www.buildingtechnologies.siemens.com/bt/us

Product Description

The controller is an integral part of Siemens controls system. The controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring, and energy management functions. This controller communicates using BACnet MS/TP.

BACnet Standardized Device Profile

Product	Device Profile	Tested
PTEC	BACnet Application Specific Controller (B-ASC)	✓

Supported BACnet Interoperability Building Block (BIBBs)

Product	BIBB	Name	Tested
PTEC	DS-RP-B	Data Sharing-ReadProperty-B	✓
	DS-RPM-B	Data Sharing-ReadPropertyMultiple-B	✓
	DS-WP-B	Data Sharing-WriteProperty-B	✓
	DM-DDB-B	Device Management-Dynamic Device Binding-B	✓
	DM-DOB-B	Device Management-Dynamic Object Binding-B	✓
	DM-DDC-B	Device Management-DeviceCommunicationControl-B	✓
	DM-RD-B	Device Management-ReinitializeDevice-B	✓
	DM-BR-B	Device Management-Backup and Restore-B	✓
	DM-OCD-B	Device Management-Object Creation and Deletion-B	✓

Standard Object Types Supported

Product	Object Type	Creatable	Deletable
PTEC	Analog Input	No	No
	Analog Output	Yes	Yes
	Binary Input	No	No
	Binary Output	Yes	Yes
	Device	No	No
	File	Yes	Yes
	Program	Yes	Yes

Data Link Layer Options

Product	Data Link and Options
BTEC	MS/TP master (Clause 9), baud rate(s): 9600 bps, 19200 bps, 38400 bps, 76800 bps
	MS/TP slave (Clause 9), baud rate(s): 9600 bps, 19200 bps, 38400 bps, 76800 bps

Segmentation Capability

Product	Segmentation Type	Supported	Window Size: 32 (MS/TP product limited to 1)
BTEC	Able to transmit segmented messages	No	
	Able to receive segmented messages	No	

Device Address Binding

Product	Static Device Binding Supported
BTEC	Yes

Networking Options

Product	Static Device Binding Supported
BTEC	No

Character Sets

Product	Charcter Sets Supported
BTEC	ANSI X3.4