SIEMENS

Technical Specification Sheet
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BACnet ATEC Controller

The BACnet Actuating Terminal Equipment Controller (ATEC) is an integral part of the BACnet network. The controller provides high performance direct digital control (DDC) of pressure-independent, variable-air-volume zone-level routines. The BACnet ATEC can either operate stand-alone or be networked to perform complex HVAC control, monitoring and energy management functions. It is designed to reside on any BACnet control system.

Features

- Controller integrated with actuator for ease of installation.
- PID control of HVAC systems minimizes offset and maintains tighter setpoint control.
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks.
- BTL Listed as a B-ASC device.
- BACnet VAV Actuator requires only 5 VA, an advantage when sizing electrical capacity.
- Unique control algorithms for specific applications.
- Plenum rated controller.
- Setpoints and control parameters assigned and changed locally or remotely.
- Electrically Erasable Programmable Read Only Memory (EEPROM) used for storing setpoints and control parameters—no battery backup required.
- Return from power failure without operator intervention.
- No calibration required, thereby reducing maintenance costs.
- Auto-discovery and Auto-addressing over entire MS/TP network.
- Advanced digital room unit for temperature, CO_2, and relative humidity.
- Supports analog or digital room units with either absolute or warmer-cooler setpoint adjustments.
- Includes a user-adjustable temperature offset for the room temperature reading when required for validation purposes.
- Automated fault detection and diagnostics procedure for ease of startup/commissioning and troubleshooting.

Applications

Operating independently, or as part of a BACnet System, the BACnet ATEC can control the following VAV pressure- independent zone applications:

- Slave Mode (Application 6684)
- VAV Cooling Only (Application 6630)
- VAV Cooling or Heating (Application 6631)
- VAV with Electric Reheat or Baseboard Radiation (Application 6632)
- VAV with Hot Water Reheat (Application 6633)

- VAV Series Fan Powered with Electric Reheat (Application 6634)
- VAV Series Fan Powered with Hot Water Reheat (Application 6635)
- VAV Parallel Fan Powered with Electric Reheat (Application 6636)
- VAV Parallel Fan Powered with Hot Water Reheat (Application 6637)

Control algorithms are preprogrammed. The controller is ready to operate after selecting the application and assigning the unit's controller address. If desired, the operator may adjust the air volume setpoints in cfm (lps), 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. See the *BACnet Programmable TEC (PTEC) Tool User Manual* (125-5051) for more information.

Hardware

Controller Board

The BACnet Actuating Terminal Equipment Controller (ATEC) consists of an electronic controller, a differential pressure sensor and a damper actuator 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 directly on a damper shaft.

The BACnet ATEC has two AI or DI (10K/100K Ω thermistor, selectable), one analog output (0-10 Vdc) and 4 Triac type digital outputs.

In addition to controlling the integrated damper actuator, the controller interfaces with the following external devices (purchased separately):

- Room temperature sensor with optional setpoint dial and night override button.
- Service and commissioning tools.
- Building Automation System from Siemens Industry, Inc.

Room Sensor/Room Unit

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, Carbon Dioxide, and Relative Humidity Models

The Series 2200/2300 range of room unit, usable with the BACnet Programmable TEC (PTEC/ATEC) includes temperature only or combination temperature/humidity, temperature/CO_2, or temperature/CO_2/humidity models. For these models, all measurement variables—CO_2, temperature and relative humidity values—are passed digitally to the PTEC/ATEC. This information is passed from the room unit through the RJ-11 cable to the RTS port on the PTEC/ATEC.

NOTE:
A CO_2 power module (product number AQM2200) is also needed for the CO_2 sensor option to function.

BACnet ATEC Specifications

Dimensions	5-9/16" H x 2-15/16" W x 4-3/16" D
Weight	approx. 1.26 lbs (.572 kg)

Power Requirements	
Operating Range	24 Vac +/-20%, 50 or 60 Hz
Power Consumption	5 VA max (12 VA per DO, 40 VA max.)

Inputs	
Analog or Digital	Two 10K/100K Ω thermistor or digital

Outputs	
2 Triacs (for integral actuator) 4 Triacs, 12 VA each	Requires 24 Vac source which allows switching; phase or neutral
Analog	One 0-10 Vdc

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 (PAZX7)
FCC Compliance	FCC Part 15, Class B
BTL Listed	as a B-ASC device

CE	EN60730-1/14 Light Industrial Immunity CISPR 22 Class “B”
RCM	AS/NZS 61000-6-3

Actuator Specifications

Controller	Actuator / Torque
550-430PA	GDE/44 lb-in. (5Nm)
550-431PA	GLB/88 lb-in. (10Nm)

Actuator Run Time for 90°	
GDE	90 sec. at 60 Hz (108 sec. at 50 Hz)
GLB	125 sec. at 60 Hz (150 sec. at 50 Hz)

Angle of Rotation	
Nominal	90°
Maximum	95°

Actuator Shaft Size and Length	
Shaft Size	3/8" to 5/8" (8 to 16 mm) Dia. 1/4" to 1/2" (6 to 13 mm) Sq.
Minimum Shaft Length	3/4" (20 mm)

Transformer Requirements and Recommended Voltages

Transformer Requirements and Recommended Voltages	
Type	Class 2, SELV, PELV
Voltages	24 Vac, 50/60 Hz

Differential Pressure Sensor

The differential pressure sensor is easily connected to the box’s air-velocity sensing elements to provide measurement of the differential pressure. The measured value is converted to actual airflow in cfm (lps) by the controller.

Differential Pressure Sensor Specifications

Temperature Range	32°F to 122°F (0°C to 50°C)
Measurement Range	0 to 5200 fpm (0 to 26 m/s)

Product Ordering Information

Description	Product Part Number
BACnet Actuating Terminal Equipment Controller (ATEC) — GDE	550-430PA
BACnet Actuating Terminal Equipment Controller (ATEC) — GLB	550-431PA

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
Duct Temperature Sensor	149-134P25
Low Limit Detection Thermostat	155-016P25
Analog Sensors – 10K/100K Ω 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
Siemens Electronic Actuators	**Document Part Number**
OpenAir Electronic Damper Actuators, GDE/GLB Series Non-spring Return Rotary 24 Vac – Modulating Control 0 to 10 Vdc	155-187P25
OpenAir Electronic Damper Actuators, GDE/GLB Series Non-spring Return, 24 Vac Floating Control, Rotary	155-188P25

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