

## BACnet Fan Coil Controller



**Figure 1. BACnet Fan Coil Controller.**

The BACnet Fan Coil Controller is an integral part of Siemens Building Technologies, Inc. controls system, providing high performance Direct Digital Control (DDC) of pressure dependent boxes, fan coil units, and induction units. The BACnet Fan Coil Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring, and energy management functions without relying on a higher-level processor.

This controller communicates with the Siemens Control System using BACnet MS/TP.

### Features

- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as B-ASC
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control

- Unique control algorithms for specific applications
- 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
- Separate minimum and maximum air volume setting for heating and cooling modes
- User adjustable offset for the room temperature reading when required for validation purposes

### Applications

#### Pressure Dependent Terminal Boxes:

- Heating or Cooling
- Hot Water Reheat

#### Fan Coil Units:

- Heating or Cooling
- Heating and Cooling
- Three-stage Electric Heat and Chilled Water
- Three-stage Electric Heat and Two-Stage Cooling
- Hot Water Reheat and Two-Stage Cooling

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

### Hardware

#### Controller Board

The BACnet Fan Coil 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 terminal box. An optional enclosure protects the controller assembly.

The BACnet Fan Coil Controller interfaces with the following external devices:

- Floating 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)

### Room Sensor

The room sensor connection to the controller board consists of a quick-connect RJ-11 jack. This streamlines the installation and reduces the controller's start-up time. See the *Room Temperature Sensors Technical Specification Sheet (149-312P25)*, for more information.

## Document Ordering Information

Specification Sheet/Application Bulletin	Document Part Number
Duct Temperature Sensor	149-134P25
Electronic Damper Actuator	155-188P25 (GDE 131.1P)
Siemens Valves and Electronic Actuators:	
Flowrite 599 Series – Valve and Actuator Assembly Selection	155-304P25
Powermite 599 Series – MT Series Terminal Unit Valve and Actuator Assembly Selection	155-306P25
Powermite 599 Series – MZ Series Zone Control Valve and Actuator Assembly Selection	155-307P25

## Specifications

<b>Power Requirements</b>	
Operating Range	19.2 to 27.6 Vac, 50 or 60 Hz
Power Consumption	10 VA (plus 12 VA per DO)
<b>Inputs</b>	
Analog	1 room temperature sensor 1 setpoint (optional) 1 auxiliary temperature sensor
Digital	2 dry contacts
<b>Outputs</b>	
	6 DO 24 Vac optically isolated solid state switches @ 0.5 amp
<b>Controlled Temperature Accuracy, Heating or Cooling</b>	
	±1.5°F (0.9°C)
<b>Dimensions</b>	
	4-1/8" W x 11-1/4" L x 1-1/2" H (105 mm x 197 mm x 38 mm)
<b>Weight</b>	
	approx. 2.5 lbs. (1.1 kg)
<b>Communications</b>	
Remote	BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk
Local	WinCIS
<b>Ambient Conditions</b>	
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)
<b>Agency Listings</b>	
UL Listing	UL 916, PAZX,
cUL Listed	Canadian Standards C22.2 No. 205-M1983, PAZX7
FCC Compliance	47 CFR Part 15

## Product Ordering Information

Description	Product Part Numbers
BACnet Fan Coil Controller	550-789A

# BACnet Protocol Implementation Conformance Statement

## Products

Product	Model Number	Protocol Revision	Software Version	Firmware Version
BACnet Fan Coil Controller (BTEC)	550-789A	135-2001b	1.2	BF12 1.0

Date Tested: August 2005 – B-ASC

## Vendor Information

Siemens Building Technologies  
1000 Deerfield Parkway  
Buffalo Grove, IL 60089  
[www.sbt.siemens.com](http://www.sbt.siemens.com)

## 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
BTEC	BACnet Application Specific Controller (B-ASC)	✓

## Supported BIBBs

Product	Supported BIBBs	BIBB Name	Tested
BTEC	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-DynamicDeviceBinding-B	✓
	DM-DOB-B	Device Management-DynamicObjectBinding-B	✓
	DM-DDC-B	Device Management-DeviceCommunicationControl-B	✓

### Standard Object Types Supported

Product	Object Type	Creatable	Deletable
BTEC	Analog Input	No	No
	Analog Output	No	No
	Binary Input	No	No
	Binary Output	No	No
	Device	No	No

### Data Link Layer Options

Product	Data Link	Options
BTEC	MS/TP Master	9600, 19200, 38400, 76800
	MS/TP Slave	9600, 19200, 38400, 76800

### Segmentation Capability

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

### Device Address Binding

Product	Static Binding Supported
BMEC	Yes

### Networking Options

Product	Static Binding Supported
BTEC	No

### Character Sets

Product	Character Sets supported
BTEC	ANSI X3.4

Information in this document is based on specifications believed correct at the time of publication. The right is reserved to make changes as design improvements are introduced. © 2007 Siemens Building Technologies, Inc.