SIEMENS

**Technical Specification Sheet**
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# BACnet Lab and Pressurized Room Controllers with Off-board Air Modules


**Lab Controller Module.**

**Off-board Air Module 550-819B.**

The Laboratory Control Modules (LCMs) and Pressurized Room Controllers (PRCs) have been updated to share the same hardware and enhanced applications on the new PTEC hardware platform. These controllers use the Off-board Air Module (OAM) to measure airflow for standard and custom pressurized room control applications.

These controllers are designed to reside on any BACnet control system.

**NOTE:**
The 570-8*xx*PA BACnet laboratory controllers have new 67xx application numbers. New application numbers may require front-end graphics and reporting modifications. Upgrading to the new controllers might, in some rare instances, cause some programming rework.

## Lab Controller Module

The LCM operates as an independent, stand-alone DDC controller and can be connected on the Floor Level Network (FLN). The LCM includes the largest physical point count of any FLN device. Not all physical points are used in all applications.

## Off-board Air Module

The OAM contains the air velocity sensor (a specialized differential pressure transducer), V/F conversion circuitry and solenoid for auto-zero function. Advanced digital signal processing produces a highly accurate reading of even the noisiest flow signals.

The auto-zero solenoid connects to the air velocity pressure transducer's inlet ports to enable automatic periodic re-calibration. This re-calibration ensures accurate, drift-free airflow measurement. Automatic re-calibration of the differential pressure transducers occurs upon system power-up and when airflows are stable with frequency selectable from 1 to 6 times a day.

**NOTE:**
The redesigned 550-819B Off-board Air Module (OAM) replaces 550-819N for airflow measurement. The 550-819B is easily identifiable by the revision "BA" found on the product bar code label (550-819BBA*xxxxxxx*).

## 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.
- Auto-discovery and Auto-addressing over entire MS/TP network. (WCIS 4.0 or later)
- UL864 Listed for Smoke Control.
- Enhanced Room Unit functionality, including room humidity and $CO_2$ monitoring.
- Enhanced Room Unit functionality, including improved handling of communication losses and thermistor input selections. (570-8*xx*PA/PKA)
- LCM can be factory mounted on terminal units or Venturi Air Valves, or field mounted in panels located for easier access.
- OAM factory mounted on terminal units or Venturi Air Valves eliminates field installation of airflow signal tubing.
- Control applications available for a variety of airflow control devices, including dampers, terminal units, fans with VFDs and Venturi air valves.
- Control applications using a variety of actuation types including high-speed electronic, low-speed electronic and pneumatic (with transducers).
- Control applications that do not use a general exhaust, does not require a second OAM.
- Airflow sensor is read five times per second, independent of the output device loop time, giving the most accurate reading at all times.
- Airflow sensor is automatically recalibrated periodically to maintain highest accuracy.
- BTU Compensation temperature control application allows tighter control without over-cooling or over-heating during transients (requires discharge temperature sensor).
- Supports the use of wall switch input to change from occupied to unoccupied state.
- Optional room pressurization alarm output to notify laboratory occupants.
- Reports airflow directly in actual CFM (LPS).
- Electrically Erasable Programmable Read Only Memory (EEPROM) used for storing control parameters—no battery backup or re-entry of data required.
- Quick return from power failure without operator intervention that maintains room pressure relationship.
- Maintains room pressurization during transient conditions.
- Plenum rated controller.
- User-adjustable offset for the calibration of room temperature reading when required for validation purposes. See *Application Information*.

### 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 LCM/PRCs, 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 LCM/PRC. This information is passed from the room unit through the RJ-11 cable to the RTS port on the LCM/PRC.

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

# BACnet Lab and PRC 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 (10K thermistor)<br>2 air velocity sensors (only for OAM inputs)<br>1 setpoint (optional at RTS)<br>1 auxiliary temperature sensor (10K (default)/100K thermistor)<br>2 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<br>1 DO dedicated to AZ function |

| Airflow Sensing and Control | |
|---|---|
| OAM<br>Measurement Range<br>Accuracy | <br>0 to 5600 fpm (0 to 26 m/s)<br>3.5% reading maximum error from velocity pressure of 0.023”WC(5 Pa) |
| Controller Temperature Accuracy | ± 1.5 F (0.9 C) |

| 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) |

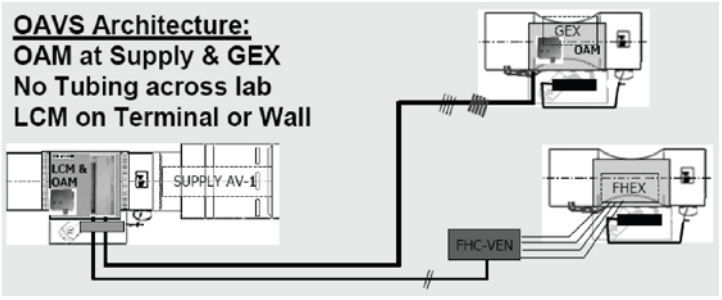
| Agency Listings | |
|---|---|
| UL Listing | UL 864, PAZX |
| cUL Listed | Canadian Standards C22.2 No. 205, PAZX7 |
| FCC Compliance | 47 CFR Part 15 |
| BTL Listed | As a B-ASC device |

# Application Information

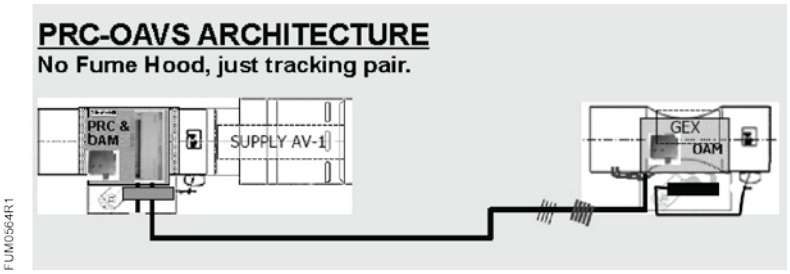
New product/application number includes enhanced Room Unit functionality that enables room humidity and $CO_2$ monitoring as well as Auto-addressing, Auto-discovery and Smoke Control listed controllers (570-8*XX*PKA).

| LCM/P/N | Application | Airflow Control | | Temperature Control | | Application Notes |
|---|---|---|---|---|---|---|
| | | Device | Output Type | Application | Output | |
| | | | | | | |
| 570-804PA<br>570-804PKA | 6750<br>6756 | Venturi | High-speed Modulating | Room Temp Sensor<br>BTU Comp [Discharge Temp Req'd] | 0-10V | Flow-Tracking, compatible with VAV fume hood control. OCC and UOC states have separate, selectable: >Differential Flow Setpoint >VAV or CAV Temp Control Mode. Room Temperature Offset for single-point calibration. |
| | | | | | | |
| 570-803PA<br>570-803PKA | 6751<br>6757 | Damper | High-speed 3-state | Room Temp Sensor<br>BTU Comp [Discharge Temp Req'd] | 0-10V | Flow-Tracking, compatible with VAV fume hood control. OCC and UOC states have separate, selectable: >Differential Flow Setpoint >VAV or CAV Temp Control Mode. Room Temperature Offset for single-point calibration. |
| | | | | | | |
| 570-802PA<br>570-802PKA | 6752<br>6758 | Venturi | Low-speed Modulating | Room Temp Sensor<br>BTU Comp [Discharge Temp Req'd] | 0-10V | Flow-Tracking, compatible with CV2 fume hood control. OCC and UOC states have separate, selectable: >Differential Flow Setpoint >VAV or CAV Temp Control Mode. Room Temperature Offset for single-point calibration. |
| | | | | | | |
| 570-801PA<br>570-801PKA | 6753<br>6759 | Damper | Low-speed 3-state | Room Temp Sensor<br>BTU Comp [Discharge Temp Req'd] | 0-10V | Flow-Tracking, compatible with CV2 fume hood control. OCC and UOC states have separate, selectable: >Differential Flow Setpoint >VAV or CAV Temp Control Mode. Room Temperature Offset for single-point calibration. |
| | | | | | | |
| 570-805PA<br>570-805PKA | 6754<br>6760 | Damper supply Venturi exhaust | Low-speed Modulating / Low-speed 3-state | Room Temp Sensor<br>BTU Comp [Discharge Temp Req'd] | 0-10V | Flow-Tracking, compatible with CV2 fume hood control. OCC and UOC states have separate, selectable: >Differential Flow Setpoint >VAV or CAV Temp Control Mode. Room Temperature Offset for single-point calibration. |

**NOTE:** Setpoint hardware adapter is required when using 10K duct sensor in place of room temperature sensor.



| PRC / P/N | Application | Airflow Control | | Temperature Control | | Application Notes |
|---|---|---|---|---|---|---|
| | | Device | Output Type | Application | Output | |
| | | | | | | |
| 570-810PA<br>570-810PKA | 6773 | Damper | Low-speed<br>3-state | Room Temp or<br>Discharge Temp<br>Sequenced with<br>Radiation | REHEAT 3-pos/0-10V<br><br>(*Optional*)<br>RADIATION<br>0-10V | Flow-Tracking, NO FH FLOW INPUT.<br>Separate Heating & Cooling Setpoints<br>Two pressurization states.<br>Room Temperature Offset for single-point calibration and SECURE MODE for Part 11 compliance solution. |
| | | | | | | |
| 570-811PA<br>570-811PKA | 6761 | Various | Low-speed 3-state<br>Or<br>Modulating | Discharge Temp | REHEAT<br>0-10V | “Cacade” Control of Room Pressure by Resetting Flow-Tracking Differential.<br>Room Temperature Offset for single-point calibration and SECURE MODE for Part 11 compliance solution. |



## Product Ordering

| Description | Product Part Number |
|---|---|
| BACnet Lab Controller Module | 570-8*XX*PA |
| BACnet Smoke Control Listed Controller Module | 570-8*XX*PKA |
| Off-board Air Module | 550-819B |
| Single Duct Supply Terminal | LGSn...n |
| Dual Duct Supply Terminal | LGDn...n |
| Exhaust Terminal | LGEn...n |
| Airflow Measurement Station | LGFn...n |
| Venturi Air Valve<br>– Constant Volume<br>– Variable Volume<br>– Zero Leakage Shut-Off | <br>AVCn….n<br>AVVn….n<br>AVZn….n |
| Venturi Air Valve Accessories | AVAn….n |
| Laboratory Electronic Actuator | GNP191.1P |
| TEC Duct Sensor Setpoint Adapter Kit | 540-656 |

## Document Information

| Description | Product Part Number |
|---|---|
| Venturi Air Valves | 149-425 |
| Conical Venturi Air Valve for Critical Environments | 149-524 |
| Venturi Air Valve Accessories | 149-495 |
| Laboratory Room Single Duct Supply Air Terminal | 149-319 |
| Laboratory Exhaust Air Terminal | 149-320 |
| Laboratory Room Dual Duct Supply Air Terminal | 149-338 |
| Laboratory Airflow Station | 149-317 |
| Laboratory Electronic Actuator Submittal Sheet | 155-771 |



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