

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) are available on a new hardware platform. These controllers use the Off-board Air Module (OAM) to measure airflow for standard and custom pressurized room control applications.



NOTE:

The 550-767.xN laboratory controllers have new 29xx 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:**

Enhanced 550-767xN laboratory controllers **must use 550-819B** Off-board Air Modules (OAM). Using 550-818B with enhanced 550-767xN controllers will not work. 550-818B OAM are to only be used for legacy 550-767x controllers.

Features

- Enhanced Room Unit functionality, including room humidity and CO₂ monitoring for 550-767xN controllers.
- Enhanced Room Unit functionality, including improved handling of communication losses and thermistor input selections 550-767xN controllers.
- 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*.
- Secure Mode prevents unauthorized users from making changes to the TEC through the MMI port or room sensor, supporting FDA 21 CFR Part 11 compliance guidelines for protection of electronic records. 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/CO₂, or temperature/CO₂/humidity models. For these models, all measurement variables—CO₂, 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 CO₂ power module (product number AQM2200) is also needed for the CO₂ sensor option to function.

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) 2 air velocity sensors (only for OAM inputs) 1 setpoint (optional at RTS) 1 auxiliary temperature sensor (100K thermistor) 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 1 DO dedicated to AZ function

Airflow Sensing and Control

OAM Measurement Range Accuracy	0 to 5600 fpm (0 to 26 m/s) 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

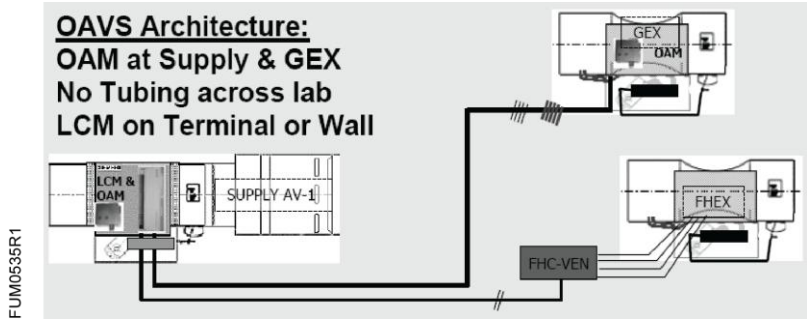
Shipping & Storage Temperature	-13°F to 158°F (-25°C to 70°C)
Operating Temperature	32°F to 122°F (0°C to 50°C)
Humidity Range	5% to 95% rh (non-condensing)

Application Information

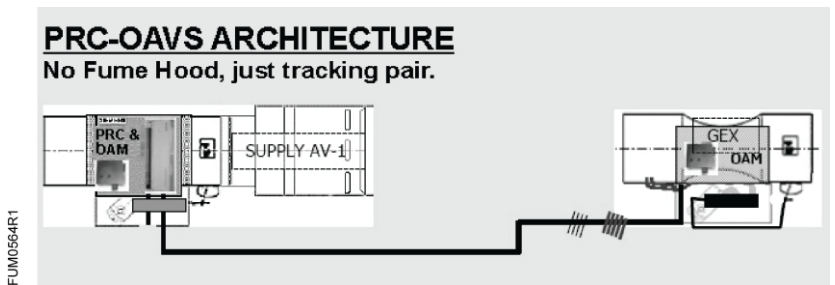
New product/application number includes enhanced Room Unit functionality that enables room humidity and CO2 monitoring.

LCM/P/N	Application	Airflow Control		Temperature Control		Application Notes
		Device	Output Type	Application	Output	
550-767CN	2920	Venturi	High-speed Modulating	Room Temp Sensor	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 and SECURE MODE for Part 11 compliance solution.
	2926			BTU Comp [Discharge Temp Req'd]		
550-767DN	2922	Venturi	Low-speed Modulating	Room Temp Sensor	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 and SECURE MODE for Part 11 compliance solution.
	2928			BTU Comp [Discharge Temp Req'd]		
550-767EN	2921	Damper	High-speed 3-state	Room Temp Sensor	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 and SECURE MODE for Part 11 compliance solution.
	2927			BTU Comp [Discharge Temp Req'd]		
550-767FN	2923	Damper	Low-speed 3-state	Room Temp Sensor	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 and SECURE MODE for Part 11 compliance solution.
	2929			BTU Comp [Discharge Temp Req'd]		
550-767GN	2924	Damper supply Venturi exhaust	Low-speed Modulating / Low-speed 3-state	Room Temp Sensor	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 and SECURE MODE for Part 11 compliance solution.
	2930			BTU Comp [Discharge Temp Req'd]		

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	
550-767NN	2963	Damper	Low-speed 3-state	Room Temp or Discharge Temp Sequenced with Radiation	REHEAT 3- pos/0-10V (Optional) RADIATION 0-10V	Flow-Tracking, NO FH FLOW INPUT. Separate Heating & Cooling Setpoints Two pressurization states. Room Temperature Offset for single-point calibration and SECURE MODE for Part 11 compliance solution.
550-767HN	2931	Various	Low-speed 3-state Or Modulating	Discharge Temp	REHEAT 0-10V	"Cascade" Control of Room Pressure by Resetting Flow-Tracking Differential. Room Temperature Offset for single-point calibration and SECURE MODE for Part 11 compliance solution.



Product Ordering

Description	Product Part Number
Lab Controller Module	550-767.XN
Off-board Air Module NOTE: Enhanced 550-767xN laboratory controllers must use 550-819B Off-board Air Modules (OAM). Using 550-818B with enhanced 550-767xN controllers will not work. 550-818B OAM are to only be used for legacy 550-767x controllers.	550-819B
Single Duct Supply Terminal	LGSn....n
Dual Duct Supply Terminal	LGDn....n
Exhaust Terminal	LGE n....n
Airflow Measurement Station	LGF n....n
Venturi Air Valve – Constant Volume – Variable Volume – Zero Leakage Shut-Off	AVCn....n AVVn....n 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
Fume Hood Controller Variable Air Volume	149-245
Fume Hood Controller Constant Volume, 2-state (CV2)	149-947
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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