

NB-GPC^{LC1} BACnet® Laboratory Controller

The NB-GPC^{LC1} is a fully programmable Native BACnet solution designed for laboratory and critical environment applications. Based on our proven GPC technology, the NB-GPC^{LC1} can be configured to control sensitive environments through the use of both built-in logic blocks and support for line-by-line custom programming.

The NB-GPC^{LC1} provides hardware flexibility utilizing on-board I/O and STATbus; AAM's innovative sensor networking technology. Due to the sensitivity of control required in these environments, the NB-GPC^{LC1} contains a dedicated network input for receiving totalized exhaust flow from nearby NB-GPC^{HC} fume hood controllers in a high-speed, reliable manner independent of the BACnet BAS network.

The NB-GPC^{LC1} is a BTL-listed BACnet Advanced Application Controller (B-AAC), conforming to the rigorous requirements of the ANSI/ASHRAE 135 BACnet standard. The NB-GPC^{LC1} can be installed as a stand-alone solution for laboratory control, and even be integrated into a new or existing BACnet building automation system without the use of a gateway or third-party device.

FEATURES

10 BACnet Schedule objects and 4 BACnet Calendar objects

Supports dynamic & flexible weekly and exception scheduling control

4 Notification Class objects

Define destinations to where object alarms and events are sent

16 PID Loop objects

Standard closed loop analog control with flexible setpoint scheduling

32 Remap objects

Provides support for re-directing values within internal logic

6 Pulse Pair PID Loop objects

Closed loop paired-output control with flexible setpoint scheduling

8 Math objects

Add, Subtract, Multiply, Divide, Min, Max, and Average

16 Logic objects

Provides general Boolean logic operations

12 Min/Max/Average objects

Provides min, max, and average values

4 Enthalpy objects

Dedicated Enthalpy calculation

12 Scaling objects

Linear interpolation between two defined scales and outputs the result

12 Input Select objects

The ability to choose "one or other" based on built-in Boolean logic

8 Accumulator Objects

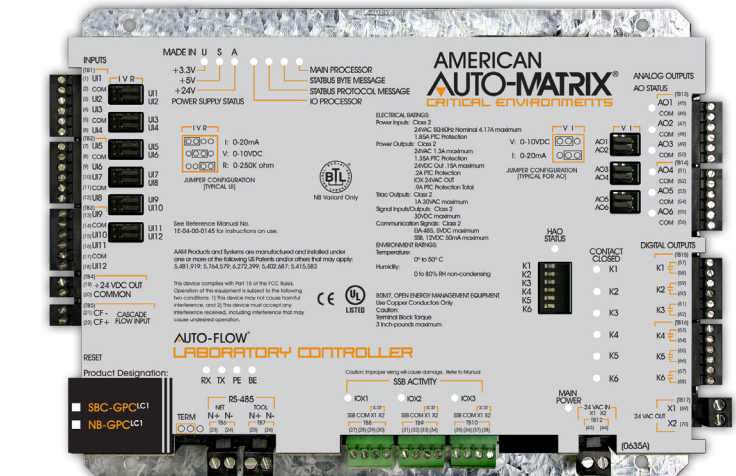
Can be used for flow accumulation, totalization, and other custom applications for critical environmental control

8 Staging object

Supports up to 8 stages each with runtime usage, lead lag, & other features

24 Thermostatic Loop objects

Closed loop, thermostatic (on/off) control with seasonal & schedule control



24 Netmap objects

Supports reading and writing information to/from other BACnet devices

8 Broadcast objects

Support for transporting key data to multiple devices and networks

1 Comm Status object

Ability to allow custom operations based on network status

1 Season object

Determines summer/winter modes for seasonal setpoint control on loops

1 Cascade flow input

For totalized fume hood exhaust volume flow

SPL Line By Line Programming Support

6 SPL Program Regions

8kb per program - provides BASIC-style programming capabilities

Data Storage

Analog Value and Binary Value Objects

24 of each type supported with alarming/command prioritization support

IOX Modules	
SSB-FI1	1 Universal Input
0-5 VDC, 0-10 VC, 0-20 mA no external power supply needed	
SSB-UI1	1 Universal Input
0-10 VDC, 0-20 mA, requires external power supply, excitation power available for powered sensors	
SSB-A01	1 Analog Output
0-10 VDC into 1 kW load, 0-20 mA into 250 kW load	
SSB-DI1	1 Digital Input
updated every 100ms, measures pulse width as small as 50 mS	
SSB-DO1	1 digital output (relay)
SSB-DO2	2 digital outputs (relay)
max load up to 10 A up to 250 VAC/DC	
SSB-DO1-1	1 dry contact input / 1 digital output (relay)
SSB-DO2-1	2 dry contact inputs/ 2 digital outputs (relay)
max load up to 10 A up to 250 VAC/DC	
SBC-STAT	1 digital temp and/or humidity input
direct digital sensor (STAT1-D, STAT2-D, STAT3, RH1, RH3, RHT)	
SSB-IOX1-1	UI-4 DI-1 AO-2 DO-2
SSB-IOX1-2	UI-8 DI-0 AO-0 DO-0
SSB-IOX2-1	UI-12 DI-0 AO-6 DO-6
SSB-IOX2-2	UI-12 DI-0 AO-0 DO-0

12 Universal Inputs

24-bit Resolution
 Programmed/Jumper Selectable
 0 to 5 VDC
 0 to 10 VDC
 0 to 20 mA
 Scaled Linear or Thermistor

6 Analog Outputs

12-bit Resolution
 Jumper Selectable
 0 to 10 VDC @ 20 mA
 0 to 20 mA

1 Cascade Flow Input

Connects to FHCs

STATbus Expansion Limits

Up to 12 additional Universal Inputs
 Up to 7 additional Digital Inputs
 Up to 6 additional Analog Outputs
 Up to 6 additional Digital Outputs



3 STATbus Ports

6 Digital Outputs

6-30 VAC, 50/60 Hz, 1 Amp
 HAO switch w/ diagnostic feedback
 Opto-Isolated Triac Outputs

NB-GPCLC1 SPECIFICATIONS

Processor	high speed 32-bit processor	Overall Size	8.2 x 6.5 x 1.0 in (20.83 x 16.51 x 2.54 cm)
Terminations	pluggable terminal blocks for I/O, power, & network connections	Shipping Weight	1.4 lbs (0.64 kg)
Wiring	18-22 gauge wire	Mounting	flat surface with screws
Baud Rates	9.6, 19.2, 38.4, 57.6, 76.8, 115.2 kbps	Operating Temp	32 to 122° F (0 to 50° C)
Input Supply	22 to 29 VAC 50/60 Hz @ 4.16A max, PTC protection	Storage Temp	-40 to 151° F (-40 to 66° C)
Transformer	internal isolated switching power supply	Relative Humidity	0 to 90% RH non-condensing
Indicators	LEDs for line power, regulated DC voltages	Agency Listings	UL listed 916, Management Equipment, Energy (PAZS) FCC rules Part 15 Class B computing device
Outputs	analog: 0-10 VDC into 1kW load or 0-20 mA into 250W load digital: able to switch 10-29 Vrms 50/60 Hz @ 1A resistive or inductive load digital outputs provide varistor protection		



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 5,764,579; 6,272,399; 5,920,488; 5,946,221; 5,481,919; 5,402,687; 5,415,583

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