![American Auto-Matrix — A Cylon Energy Inc. Company]

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^FHC 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
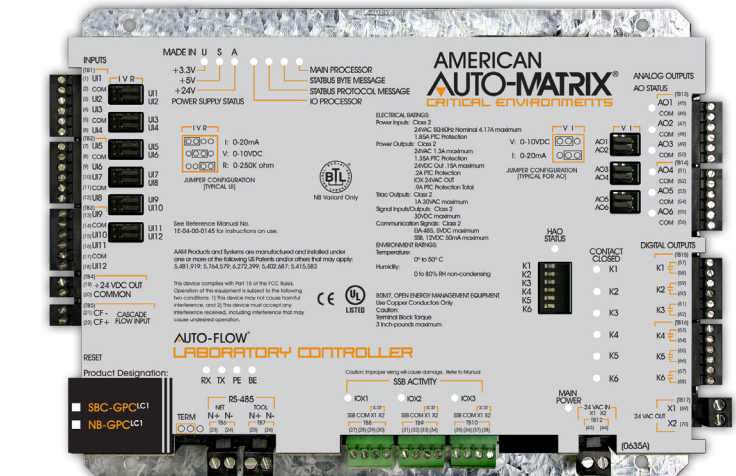
8 Accumulator Objects
Can be used for flow accumulation, totalization, and other custom applications for critical environmental control

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-D01-I 1 dry contact input / 1 digital output (relay)
SSB-DO2-I 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 Cascase 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-GPC^LC1 SPECIFICATIONS

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

BACnet® **BTL** **UL LISTED** **CE** **BACnet® International**

American Auto-Matrix products and systems are manufactured and installed under one or more of the following US patents and/or others that may apply.
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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