

**DESCRIPTION**

As a member of the GPC Product Family, the NB-GPC4 is a fully programmable, networkable, and expandable BACnet Advanced Application Controller (B-AAC). The device is designed to provide hardware and software flexibility using onboard I/O and STATbus - AAM's innovative sensor networking technology. The NB-GPC4 offers the lowest cost per point ratio of the GPC family of controllers when using Statbus IOX devices.

The NB-GPC4 can be used in a wide variety of applications that require stand-alone control, as well as full peer-to-peer capabilities with other devices on the BACnet network. The hardware platform includes status LEDs for power, communications, output status, and other features helpful for field usage. All NB-GPC products comply with the ANSI/ASHRAE BACnet Standard and are BTL-listed as B-AAC profile devices.

**FEATURES**

*GPC Technology features built-in logic blocks that enable you to create and implement functional and scalable program routines without having to write a single instance of line-by-line programming.*

- **10 BACnet Schedule objects and 4 BACnet Calendar objects**
  - Supports dynamic and flexible weekly and exception scheduling control.
- **4 Notification Class objects**
  - Define destinations to where object alarms and events are sent.
- **16 PID Loop objects**
  - Provides standard closed loop analog control with flexible setpoint scheduling.
- **24 Thermostatic Loop objects**
  - Provides closed loop, thermostatic (on/off) control with seasonal and schedule control.
- **6 Pulse Pair PID Loop objects**
  - Provides 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**
  - Provides dedicated Enthalpy calculation.
- **12 Scaling objects**
  - Provides linear interpolation between two defined scales and outputs the result.
- **12 Input Select objects**
  - Provides the ability to choose "one or other" based on built-in Boolean logic.
- **6 Staging objects**
  - Supports for up to 8 stages each with runtime usage, lead lag, and other features.
- **32 Remap objects**
  - Provides support for re-directing values within internal logic.
- **8 Netmap objects**
  - Supports reading and writing information to/from other BACnet devices.
- **8 Broadcast objects**
  - Provides support for transporting key data to multiple devices and networks.
- **1 Comm Status object**
  - Provides the ability to allow custom operations based on network health.
- **1 Season object**
  - Used to determine summer/winter modes for seasonal setpoint control on T-Stat loops
- **1 Timer Object**
  - Provides IO Function timers
- **8 Piece-wise Curve objects**
  - Provides custom signal curves to input devices

**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 and command prioritization support.



I/O Capabilities			
	Onboard	Expandable	Total
UI	12	36	48
DI	1	7	8
AO	6	18	24
DO	6	18	24

NB-GPC4

Expandable Advanced Applications Controller

# AMERICAN AUTO-MATRIX® NB-GPC4 Expandable Advanced Applications Controller

## THE NB-GPC4 CONTROLLER



**Twelve (12) Universal Inputs**

- 24 Bit Resolution
- Can be Programmed:
  - 0 to 5 VDC
  - 0 to 10 VDC
  - 0 to 20mA
  - Scaled Linear
  - Thermistor
  - Pulse Counting

**Six (6) Analog Outputs**

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

**One (1) Digital Input**

- 5 to 29 V DC Opto/Isola
- 20 Pulses/sec.

**Three (3) STATbus Ports**

**Six (6) Digital Outputs**

- 6-30 VAC, 50/60 Hz
- 1 Amp
- Opto-Isolated Triac
- HAO Switch with Diagnostic Feedback
- Varistor Protection

**IOX Modules**

<p><b>One (1) Universal Input</b> <span style="float: right;">SSB-FI1</span></p> <ul style="list-style-type: none"> <li>• Resistance:             <ul style="list-style-type: none"> <li>• 0-5 VDC</li> <li>• 0-10 VC, 0-20mA</li> <li>• No External Power Supply Needed</li> </ul> </li> </ul>	<p><b>One (1) Digital Output (Relay)</b> <b>Two (2) Digital Outputs (Relay)</b></p> <ul style="list-style-type: none"> <li>• Max Load Up to 10 A up to 250 VAC/DC</li> </ul>
<p><b>One (1) Universal Input</b> <span style="float: right;">SSB-UI1</span></p> <ul style="list-style-type: none"> <li>• Resistance:             <ul style="list-style-type: none"> <li>• 0-10 VDC</li> <li>• 0-20mA</li> <li>• Requires External Power Supply</li> <li>• Excitation power available for powered sensors</li> </ul> </li> </ul>	<p><b>One (1) Dry Contact Input</b> <b>One (1) Digital Output (Relay)</b></p> <p><b>SSB-D01-I</b> <b>SSB-D02-I</b></p> <ul style="list-style-type: none"> <li>• Max Load Up to 10 A up to 250 VAC/DC</li> </ul>
<p><b>One (1) Analog Output</b> <span style="float: right;">SSB-AO1</span></p> <ul style="list-style-type: none"> <li>• 0-10 VDC into One (1) kW Load</li> <li>• 0-20mA into 250 kW Load</li> </ul>	<p><b>1 Digital Temp and/or Humidity Input</b></p> <p><b>SBC-STAT</b></p> <ul style="list-style-type: none"> <li>• Direct Digital Sensor (STAT1-D, STAT2-D, STAT3, RH1, RH3, RHT)</li> </ul>
<p><b>One (1) Digital Input</b> <span style="float: right;">SSB-DI1</span></p> <ul style="list-style-type: none"> <li>• Updated Every 100 mS</li> <li>• Measures Pulse width as small as 50 mS</li> </ul>	<p><b>Multiple I/O</b></p> <p><b>SSB-IOX</b></p> <ul style="list-style-type: none"> <li><b>IOX1-1</b> • 4UI, 1DI, 2AO, and 2DO</li> <li><b>IOX1-2</b> • 8UI</li> <li><b>IOX2-1</b> • 12UI, 6AO, and 6DO</li> <li><b>IOX2-2</b> • 12UI</li> </ul>

**Expansion Capabilities**

- Up to 36 Additional Universal Inputs
- Up to 7 Additional Digital Inputs
- Up to 18 Additional Analog Outputs
- Up to 18 Additional Digital Outputs

### SPECIFICATIONS - NB-GPC4

Processor	Terminations	Input Supply	Outputs
<ul style="list-style-type: none"> <li>• High-speed 32-bit processor</li> </ul>	<ul style="list-style-type: none"> <li>• Pluggable terminal blocks for inputs, outputs, power and network connections for 18-22 gauge wire</li> <li>• Communication baud rates: 9.6, 19.2, 38.4, 57.6, 76.8, 115.2 kbps</li> </ul>	<ul style="list-style-type: none"> <li>• Line Input: 22 to 29VAC 50/60Hz @ 4.16A max, PTC protection</li> <li>• Transformer: Internal isolated switching power supply</li> <li>• Indicators: LEDs for line power, regulated DC voltages</li> </ul>	<ul style="list-style-type: none"> <li>• Analog Outputs: 0-10VDC into 1kW load or 0-20 mA into 250W load</li> <li>• Digital Outputs: Able to switch 10-29Vrms 50/60Hz @ 1A resistive or inductive load</li> <li>• Digital outputs provide varistor protection</li> </ul>

Dimensions/Mounting	Operating Environment	Agency Listings
<ul style="list-style-type: none"> <li>• Overall Size: 8.2 x 6.5 x 1.0 in. (20.83 x 16.51 x 2.54 cm.)</li> <li>• Shipping Weight: 1.4 lbs. (0.64 kg.)</li> <li>• Flat surface with screws</li> </ul>	<ul style="list-style-type: none"> <li>• Operating temperature: 32 to 122°F (0 to 50°C)</li> <li>• Storage temperature: -40 to 151°F (-40 to 66°C)</li> <li>• Relative humidity: 0 to 80% RH non-condensing</li> </ul>	<ul style="list-style-type: none"> <li>• UL listed 916, Management Equipment, Energy (PAZX)</li> <li>• FCC rules Part 15 Class B computing Device</li> <li>• UL Recognized 873, Component-Temperature Indicating and Regulating Equipment</li> <li>• Complies with CE directives and standards</li> </ul>

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