

NB-GPC<sup>FHC</sup>™ ▼ FHC-SD™

BACnet® Fume Hood Controller & Small Display

DESCRIPTION

The NB-GPC<sup>FHC</sup> is a Native BACnet controller utilizing American Auto-Matrix® GPC Technology.

The NB-GPC<sup>FHC</sup>, in combination with the FHC-SD color touch-screen local user interface, offers unprecedented technology combined with flexibility of control found nowhere else in the industry today.

Through utilizing the NB-GPC<sup>FHC</sup>, fume hoods can be configured to support a number of control methodologies including face velocity, hot wire, vortex shedding, and sash position methods through a single controller.

In addition, flexibility is expanded through the use of the FHC-SD (see reverse), a color touch-screen display that offers multiple levels of configurability and accessibility; designed to give users security and safety on a highly visible, live local user interface.



NB-GPC<sup>FHC</sup> INPUTS & OUTPUTS

<b>5 Dedicated Inputs</b> 16-bit resolution, 0-5 VDC, 0-10 VDC, 0-20 mA, 0-250K Ohms	1 Face Velocity Input 1 Exhaust Flow Input 1 Fume Hood Air Valve Pressure Input 1 Emergency Input (dry contact) 1 Sash Position Input
<b>1 Dedicated Serial Input</b>	Cascade Flow Input
<b>1 Dedicated Analog Output</b> 0-10 VDC, 0-20 mA	Exhaust Flow Damper Output
<b>1 Dedicated Digital Output</b> 10-29 VAC, 1A, Opto-isolated triac	Alarm Device Output
<b>1 Dedicated Serial Output</b>	Cascade Flow Output
<b>1 Expansion Digital Input</b> (optional) SSB-UI1	Hood Presence Input (Dry Contact) or Enable / Disable Input
<b>1 Expansion Digital Output</b> (optional) SSB-D01	Hood Lighting Output

NB-GPC<sup>FHC</sup> SPECIFICATIONS

<b>Mounting</b>	flat surface with screws
<b>Terminations</b>	pluggable terminal blocks for inputs, outputs, power and network connections for 18-22 gauge wire
<b>Input Supply</b>	<b>Line Input</b> - 22-29 VAC 50/60Hz @ 4.16A max, PTC protection <b>Transformer</b> - internal isolated switching power supply <b>Indicators</b> - LEDs for line power, regulated DC voltages
<b>Operating Environment</b>	<b>Operating Environment</b> - 32 to 122° F (0 to 50° C) <b>Relative Humidity</b> - 0 to 80% RH non-condensing
<b>Dimensions</b>	<b>Overall Size</b> - 8.2 x 6.5 x 1.0 in (20.83 x 16.51 x 2.54 cm) <b>Shipping Weight</b> - 1 lb (1.36 kg)

- ▼ Patented closed loop control based on measured face velocity technology or control based on popular Venturi-type valves and single sash area calculations.
- ▼ Microprocessor-based DDC control system utilizing tunable high speed PID (Proportional, Integral, Derivative) control algorithms or fuzzy logic algorithms
- ▼ High speed PID algorithms calculate control outputs up to (or as fast as) every 50ms
- ▼ Can be used in stand-alone or networked environments
- ▼ Programmable occupancy set points and schedules allow target face velocity to be lowered when the hood is not in use
- ▼ Pluggable wiring connections
- ▼ Pre-programmed function blocks improve application reliability
- ▼ BACnet MSTP communication over twisted pair (EIA 485) wire; up to 115.2k Baud (current BACnet standard allows up to 76.8K)
- ▼ Plug and play flow totalization for flow offset control independent of BAS network
- ▼ Digital output allows the incorporation of external alarming
- ▼ Supports non-linear input and output curves for seamless third-party sensor/damper integration
- ▼ Two stage programmable low/high alarms
- ▼ Battery backup for configuration data and real-time clock
- ▼ Emergency mode drives damper to configurable output position
- ▼ Supplied with approved, lockable enclosure

## FHC-SD FEATURES

- ▼ Displays measured or calculated face velocity (through face velocity sensors or sash position)
- ▼ 12-bit color, 272x480 pixel TFT-based touch-screen local user interface for displaying and modification of information specific to the NB-GPC<sup>FHC</sup>
- ▼ Intuitive screen calibration
- ▼ Depending on the specification requirement, users can choose between a green or white home screen
- ▼ Features local setpoint and alarm setup
- ▼ User friendly multi-tiered icon driven screens
- ▼ Step by step calibration wizards simplify product configuration
- ▼ Multi-level numerical password based access protection
- ▼ Configuration stored on Non-volatile memory of GPC<sup>FHC</sup> for backup and cloning over the EIA-485 network
- ▼ Local alarm initiation and BAS visibility
- ▼ Cancel alarm commands require authorized user
- ▼ Setup can be accomplished in either English or Metric units
- ▼ Visible/audible multistage alarming capabilities for low, high, extreme high, and extreme low values of several parameters
- ▼ Chemical resistant Kydex<sup>®</sup> plastic case, mountable on both US and Euro switch boxes \*IP-44 available upon special request\*
- ▼ A chemically resistant polyester membrane protects the touch-screen from accidental chemical splashes
- ▼ Flash program upgradability through the use of standard SD/MMC card port
- ▼ Optional control of fume hood light or accessory



## FHC-SD SPECIFICATIONS

<b>Processor</b>	high speed 32-bit processor running at 86 Mhz
<b>Display</b>	backlit 4.3" color TFT - 9:16 aspect ratio - 272 x 480 pixel resolution
<b>Touchscreen</b>	analog resistive type
<b>Local Memory</b>	8 MB Intel <sup>®</sup> onboard flash
<b>SRAM</b>	1 MB RAM
<b>Alarm Buzzer</b>	self-contained piezo buzzer
<b>Features</b>	revert & reset software buttons
<b>SD/MMC RAM Socket</b>	supports 2 GB storage capacity
<b>Dimensions</b>	6.0 x 3.4 x 1.0 in (15.24 x 8.64 x 2.54 cm)

## THE FHC-SD AND ALARMING



The FHC-SD allows for two-staged alarming, notifying users of a potential problem through visual and audible alarms. Should a preset "low/high-limit" be reached, the display will begin to flash yellow and emit a 3 second pulsing alarm from the display as a caution to the hood operator.

Should an extreme "low/high-limit" alarm occur, the display then will display a red flashing background and emit a constant pitch alarm from the display. These alarm conditions may also be broadcast via the BACnet MS/TP network.



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

**American Auto-Matrix**  
One Technology Lane  
Export, PA 15632

TEL (1) 877-AAM-HVAC  
FAX (1) 724-327-6124

AAM@AAMATRIX.COM

WWW.AAMATRIX.COM

Appropriate safety precautions must always be taken when operating or maintaining equipment connected to any American Auto-Matrix product or other Licensed Materials or Hardware. AAM assumes no responsibility or liability for any injuries or damage to any persons or property resulting from the use of these products. As always, these products should be used in the manner they are intended.

Intel is a registered trademark of The Intel Corporation. Kydex is a registered trademark of KYDEX, INC. Auto-Flow, American Auto-Matrix, the American Auto-Matrix logo, the Rocket-A and Smart Building Solutions are registered trademarks of American Auto-Matrix. USGBC and related logo is a registered trademark of U.S. Green Building Council and is used with permission.



American Made  
American Owned