

NB-GPC^{FHC}™ ▼ FHC-SD™

BACnet® Fume Hood Controller & Small Display

DESCRIPTION

The NB-GPC^{FHC} is a Native BACnet controller utilizing American Auto-Matrix® GPC Technology.

The NB-GPC^{FHC}, 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 NBC-GPC^{FHC}, 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.



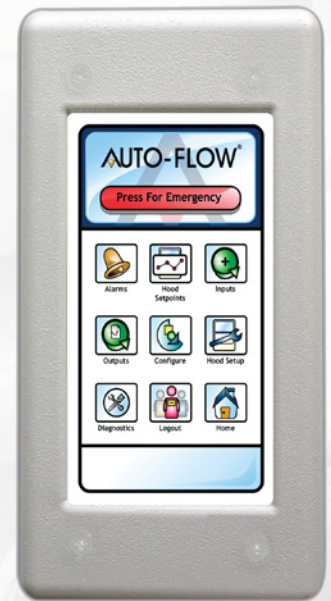
NB-GPC ^{FHC} INPUTS & OUTPUTS	
5 Dedicated Inputs 16-bit resolution, 0-5 VDC, 0-10 VDC, 0-20 mA, 0-250K Ohms	1 Face Velocity Input 1 Exhaust Flow Input 1 Fume Hood Air Valve Pressure Input 1 Emergency Input (dry contact) 1 Sash Position Input
1 Dedicated Serial Input	Cascade Flow Input
1 Dedicated Analog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

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

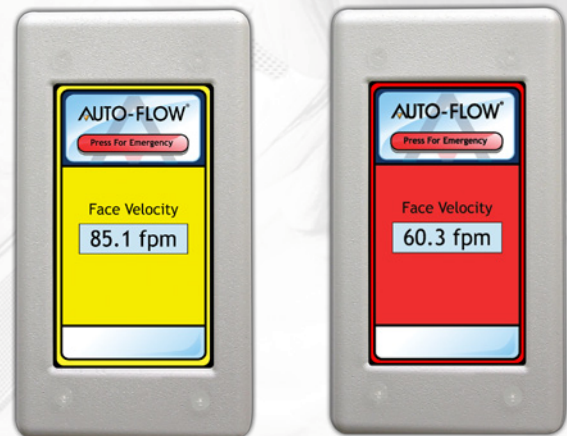
- ▼ Displays measured or calculated face velocity (through face velocity sensors or sash position)
- ▼ 12-bit color, 272x480 pixel TFT-based touch-screen local user interface for displaying and modification of information specific to the NB-GPC^{FHC}
- ▼ Intuitive screen calibration
- ▼ Depending on 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^{FHC} 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[®] 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

Processor	high speed 32-bit processor running at 86 Mhz
Display	backlit 4.3" color TFT - 9:16 aspect ratio - 272 x 480 pixel resolution
Touchscreen	analog resistive type
Local Memory	8 MB Intel [®] onboard flash
SRAM	1 MB RAM
Alarm Buzzer	self-contained piezo buzzer
Features	revert & reset software buttons
SD/MMC RAM Socket	supports 2 GB storage capacity
Dimensions	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.



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