



Product Specifications – NES FS-20 Garage Ventilation Controller

Overview

The NES FS-20 is a high-performance network controller with a 1.2 GHz quad core processor, 512 MB RAM, 8GB flash memory, HTML5 graphics, a suite of applications and kits, and multifunctional adapter widgets. It is designed to serve as a “stand-alone” demand-control ventilation (DCV) system for small- to medium-sized commercial garages, but it can be readily scaled to comport with BACnet® and Modbus® building management / energy management system communication protocols and deliver a high degree of functionality and value-added features.

The NES FS-20's built-in VPN allows for secure remote connectivity, and an optional, onboard display facilitates trouble-free commissioning, system adjustments and troubleshooting. It can be configured to control up to 25 devices, including carbon monoxide (CO) sensors, variable frequency drives (VDS) and Input/output (IO) modules. It can control a single zone or multiple zones.

Key Features:

- Drivers specific to BACnet® and Modbus® to communicate with an existing, corresponding building management system (BMS).
- Panel-mounted, 10-inch Android display – for stand-alone systems.
- Accessible by any web browser.
- NEMA 1 metal enclosure rated UL50 (file: E27567, Type 1), CSA Approved (file LL42184, Type 1) Dimensions: 24"W X 24"H X 8"D.
- UL Approved, Class 2 110V to 24 VDC Power Supply integrated in enclosure.
- Adjustable occupied, unoccupied, enable and purge schedules.
- Sensor error activates strobe and is alarmed in the alarm console.
- High Level (100 ppm for more than 15 minutes) activates horn and sends out an email alert if the controller has Internet access.
- Can control multiple VFDs (via BACnet or Modbus-enabled 4 to 20mA signal).
- Employs BACnet-enabled (or Modbus) CO sensors, thus reducing installation and replacement costs.
- Provides alerts for calibration and replacement of sensors.
- Provides critical alarm notification via emailed notifications.
- Trending available for all points, and trend reports can be generated and saved as a PDF or as an excel document on your PC.
- Fault indication Strobe.
- High Level Horn.
- Fully complies with the new California code requirements for garage ventilation, as well as other states with stricter CO sensor system/garage ventilation standards, e.g., OR, WA.

Options:

- Front panel interface to allow power and communications for laptops – when a wireless router is not employed.
- Wireless router.

Sequence of Operation

- The NES system utilizes an innovative, smart-control logic that detects and measures vehicle fumes in the garage and then modulates garage fan speeds to prevent carbon monoxide (CO) and nitrogen dioxide (NO₂) levels from exceeding predefined set points (measured in parts per million) for an extended period of time.
- Our innovative system incorporates variable frequency drive (VFD) technology, syncing it with our digital garage ventilation controllers and CO (and NO₂) sensors such that it:

- Enables the motors to run continuously at low speeds – when CO (and NO₂) levels are de minimis – while adhering to code / design ventilation rate requirements;
- Creates a reservoir of fresh air in the garage such that CO (and NO₂) concentrations are prevented from exceeding pre-defined sensor trip points for an extended period of time, thereby minimizing the number of times the motor(s) must ramp to “flush out” the garage; and finally
- Incrementally increases fan motor speed(s), i.e., the ventilation rate, whenever CO (and/or NO₂) concentrations broach pre-set trip points. Said another way, the motors don’t instantaneously ramp from low to high speed(s), but rise proportionally (in speed) to counter CO (and NO₂) concentrations with an equivalent amount of fresh air.
- The result is to enable property owners to continuously ventilate their garages in an exceedingly energy efficient manner while ensuring the health and safety of building occupants and visitors.

For More Information Contact:

Frank Nagle
Nagle Energy Solutions, LLC
Ph.: (415) 378-5560
Email: frank@nagle-energy.com

www.nagle-energy.com