Product Specifications – NES FG-20 Garage Ventilation Controller

Overview

The NES FG-20 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® communication protocols and deliver a high degree of functionality and value-added features, including Internet accessibility.

The NES FG-20 incorporates an EasyIO controller with a Sedona programming framework, and it controls parking garage ventilation systems via a 4 to 20 mA signal from Modbus-communicating, NES Series 100 Electrochemical CO sensors.

The FG-20 system can be configured to control up to 25 devices, e.g., carbon monoxide (CO) sensors and variable frequency drives (VFDs). It is designed to control a single zone or multiple zones, and it can control multiple garage fan motors and VFDs. The control panel includes a 9-inch Android display to facilitate trouble-free commissioning, system adjustments and troubleshooting.

Key Features:

- Sedona Based Controller.
- Panel-mounted, 9-inch Android display – for stand-alone systems.
- Drivers specific to BACnet® and Modbus® to communicate with an existing, corresponding building management system (BMS).
- Accessible by any web browser.
- NEMA 1 metal enclosure rated UL50 (file: E27567, Type 1), CSA Approved (file LL42184,Type 1) Dimensions: 20"W X 20"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 Modbus-enabled 4 to 20mA signal).
- Employs Modbus-enabled 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.
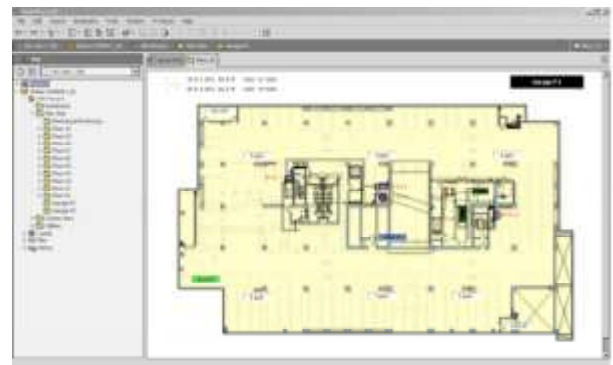
Options:

- 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 (NO_2) 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:
  - o 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;
  - o 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
  - o 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:

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