

# HVLS-RA Specification

## High Volume Low Speed Fan Control Panel Specifications:

Controls shall be listed by ETL (UL 508A)

The control enclosure shall be NEMA 1 rated. The control enclosure may be constructed of stainless steel or painted steel.

A digital thermostat controller shall be provided to activate the fans dynamically based on an adjustable setpoint from the room temperature sensor. Additional room sensors may be added to the system to create an averaged room temperature.

A digital thermostat controller shall provide adjustable hysteresis settings to prevent cycling of the fans after the fans have turned off.

A digital thermostat controller shall provide an adjustable minimum fan run-time setting to prevent fan cycling.

Variable Frequency Drives (VFDs) shall be provided for fans as required. The Control Panel shall modulate the VFDs between a minimum setpoint and a maximum setpoint on demand. The temperature sensor input(s) to the digital thermostat controller shall be the speed reference signal.

The VFD speed range of operation shall be from 0% to 100% for the system, with the actual minimum speed set as required to meet minimum ventilation and fan requirements.

An internal algorithm to the digital thermostat controller shall modulate all fan VFDs speed proportional to all fans that are located in the same fan group.

The system shall have integral timers to turn the fans off after an adjustable amount of run time. Digital timers shall also have the ability to change the system from manual mode of operation to automatic mode of operation.

A digital thermostat controller shall allow for external BMS fan control via Dry Contact. The controller shall operate each fan at a specific speed during the BMS mode.

The LCD Interface shall display all system faults and VFD operating parameters. Faults included shall be, high temp, low temp, missing sensor, broken sensor, fan over amperage condition. The fault shall be displayed as text and also include an audible alarm with a mute button. Multiple displays shall be capable of being used with the system. Each fan shall be able to be controlled and monitored through each display. An additional "Manager's Display" shall be capable of controlling and monitoring the system from a remote location.

An LCD interface shall be provided with the following features:

- a. Manual/AUTO modes for fan operation. AUTO mode based on room temperature.
- b. Fault display with audible & visual alarm notification
- c. Room temperature sensor failure detection with audible & visual alarm notification
- d. Mis-wired room temperature sensor detection with audible & visual alarm notification
- e. A single low voltage Cat-5 RJ45 wiring connection
- f. Fan number, Group number, and fan speed display in Frequency and Percentage.
- g. Time to Auto and Time to Off Countdown Timers.
- h. Fan and VFD status indicators.
- i. Ability for the user to start/stop the fan manually as well as change the fan speed.