



Vari-Flow Controls Specification

Variable Volume Kitchen Control Package

Provide Accurex Vari-Flow Controls as shown on plans and in accordance with the following specification:

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The Accurex Vari-Flow Control system shall be a U.L. Listed outlet center. The standard package shall consist of a utility cabinet constructed of a minimum 18 gauge 300 or 400 series stainless steel, a user interface (keypad or touch screen), Variable Frequency Drives (VFDs), and temperature sensors. Temperature sensors shall be made of stainless steel and shall be installed in a U.L. approved coupling. The utility cabinet shall house a NEMA-1 stainless steel box which includes terminal blocks for field connections and a Programmable Logic Controller (PLC). The PLC shall be capable of controlling multiple exhaust and supply fans via VFD or analog signals.

The user interface shall be either a keypad or touchscreen provided in accordance with the following specifications.

Keypad:

The user interface shall be a membrane keypad with a graphic overlay and LCD display. The standard interface will include hood (fan) operation, hood light, gas reset, and auto tempering buttons depending on the configuration.

- System notifications (including but not limited to hood operation, current alarms, and fan 100% override time left) shall be displayed in the middle of the screen. A red alarm light shall flash on the keypad upon a system alarm.
- If controlling multiple fans and light circuits, individual fan/light control is available.

Or

Touch Screen:

The user interface shall be a 7" touch screen with hood (fan) operation, hood light, gas reset, and auto tempering buttons depending on the configuration. The touch screen also includes additional trending, scheduling, and configuration pages. Balancing pages will be provided for ease of proper kitchen balancing.

- System notifications (including but not limited to hood operation, current alarms, and fan 100% override time left) shall be displayed at the top of the home page.
- In the event of a failure consisting of, but not limited to temperature sensor(s), VFD(s), and fire, the touch screen will automatically navigate to an alarm page, which will describe the current alarm. The alarm will continue until the failure is corrected.
- If controlling multiple fans and light circuits, individual fan/light control is available

System Operation:

The Vari-Flow sequence of operation shall utilize resistive type temperature sensors that are mounted in the capture tank of the hood to monitor exhaust air temperatures. Fluctuation of exhaust temperature caused by cooking load shall be sensed by the temperature sensor and conveyed to the controller. The controller shall fully modulate the speed of the fans via the VFD or analog signal, from maximum speed down to a minimum speed to be determined by building test and balance. The system shall be capable of serving as an IMC compliant auto start-up control to automatically start the fans during cooking operations. VFD(s) or analog signal(s) shall allow modulation of the fans based on the exhaust air temperature sensed by the temperature sensors. It must have a fully modulating turndown of up to 50% of maximum speed. Upon pressing the Fan 100% button, exhaust fan speeds shall go to maximum speed for 10 minutes (adjustable), or until the Fan 100% button is pressed again, which shall return the system to full temperature control. VFDs shall be Yaskawa brand (or equivalent) mounted in the utility cabinet. Drives provide thermal overload protection to fans and eliminate the need for magnetic starters for 3 phase motors. To ensure proper building pressurization, the supply fans shall respond to changes in the exhaust fans speeds. The speed of the associated supply fan(s) is determined by the weighted average of the exhaust fans.

In a fire condition, the control panel shall be capable of forcing the exhaust to maximum speed, shutdown of supply air, and shutdown of lights regardless of current fan speeds via integration with a fire system. Standard Vari-Flow Controls are also provided with a digital remote enable, fire system interface, and shunt trip breaker control.

Optional features may include, but are not limited to:

- Building Management System Interface
 - BACnet IP
 - BACnet MSTP
 - LONworks
 - Modbus
- Space Static Pressure Transducer
- Air Proving (Supply Air)
- Auto Tempering Button (Supply Air Heating or Cooling Enable/Disable)
- Gas Reset
- High Temperature Alarm

Due to continuous research Accurex reserves the right to change specifications without notice.