

## Demand Control Ventilation Specification

### Application:

The Demand Control Ventilation System (DCV) is designed to automatically reduce exhaust and supply airflow quantities, while ensuring hood performance is maintained. The DCV uses Variable Frequency Drives (VFD) and temperature sensors in the exhaust ducts to modulate the fans speed during cooking operation and maximize energy savings. The LCD screen interface provides fan(s) control, system configuration, and diagnostic information.

### Construction:

The DCV includes:

- Smart Controller
- LCD Screen Interface
- Duct Temperature Sensor(s)
- Variable Frequency Drive(s)

Controls shall be listed by ETL (UL 508A).

The system includes a LCD screen interface for fan(s) and hood lights control, wash control (if applicable), gas valve reset, programmable schedule, Max Air Override function, Preparation Time mode, Cool Down mode, and diagnostics including VFD status. The LCD screen shows descriptive plain text explaining the functions or values. The LCD screen interface will be installed on the face of the hood, on the face of the utility cabinet or on the face of a wall mounted control enclosure.

Control enclosure will be NEMA 1 rated and listed for installation inside of the exhaust hood utility cabinet. Control enclosure may be constructed of stainless steel or painted steel.

The smart controller will constantly monitor the exhaust air temperature through the riser mounted temperature sensor and modulate the fan speeds accordingly.

A room temperature sensor will also be provided for field installation in the kitchen space in order to start the fan(s) based on the fixed temperature differential between the room and the exhaust air in the duct rather than fixed set-points.

A Preparation Time Mode is available for morning operation: dedicated make-up air will be locked out only allowing the use of transfer air during this mode. Exhaust fan(s) will run at low CFM while maintaining a balanced kitchen pressure.

A Cool Down Mode is designed for equipment cool-down period at the end of the daily cooking operations: similarly to Preparation Time mode, dedicated make-up air will be locked out only allowing the use of transfer air during this mode. Exhaust fan(s) will run at low CFM while maintaining a balanced kitchen pressure.

Fan maximum/ minimum speeds will be adjustable for proper kitchen balance. Fan direction change is also available from the smart controller configuration menu without need for rewiring.

Duct Temperature Sensor(s) will be mounted in the exhaust hood riser(s). Temperature probe will be constructed of Stainless Steel. System will be factory pre-set to modulate fan speed within a range of 45°F for 600°F and 700°F cooking applications and a range of 5°F for 400°F cooking applications. Setpoints are fully adjustable through the LCD screen interface based on application needs.

The Max Air Override will have an adjustable timeout value.

The panels include color-coded wiring with as-built wiring diagrams and spare terminals controlled by the fire system micro switch. The panel is factory pre-wired to shut supply fans down in a fire condition. Options to turn ON the exhaust fans or turn off the hood lights in a fire condition will be configurable through the smart controller, but only through a password protected menu to prevent any changes after a fire inspection has been performed.

