

09-09-2016

**Re:** Generic DemandAire Control Sequence of Operation

**Model:** Silver

### **DEMAND CONTROL KITCHEN VENTILATION ENERGY MANAGEMENT SYSTEM**

The DemandAire Control Panel (DCP) is a pre-engineered system designed to integrate with the components of the Commercial Kitchen Ventilation (CKV) system to reduce exhaust and supply airflows and optimize energy savings. Applicable components may include the following items: Human Machine Interface (HMI) touch screens, kitchen grease exhaust and supply fans, hood lights, hood and ambient temperature monitors, Fire Suppression Systems (FSS), SmartAire Internal Hood Fans (IHF), Electric Gas Valves (EGV), cooking appliance shunt trip devices, Building Management System (BMS), and building alarms.

The HMI provides manual switches for the lights, fans, and 100% Override. The Light Switch provides power to the hood lights. The Fan Switch provides approximately 50% power to the fans. The 100% Override provides 100% power to the fans for an adjustable timed duration where 100% power corresponds to the fan power required to provide the specified hood exhaust and supply airflow rates. The IHF provided with SmartAire hoods will be interlocked with the supply fan. The HMI may also be used to view system status, view alarm status, manually reset power to the EGV, and modify or restore system settings.

Temperature monitors located in the hood exhaust collars will automatically dictate the required ventilation rate necessary to efficiently exhaust effluent, smoke, fumes, and excess heat from cooking appliances located below the hoods. Exhaust and supply fan power will vary automatically between approximately 50% and 100% based on the highest temperature monitor reading of the system by comparing each of the temperature monitor readings to the ambient temperature in the kitchen space. If the manual Fan Switch is in the off position, the exhaust and supply fans will automatically shut down after sensing a decrease of temperature below the lowest temperature monitor set point for at least 5 minutes consecutively. Individual temperature monitor differential set points will be adjusted during the commissioning process from the HMI.

Upon actuation of the FSS, an electrical interlock between the microswitches of the FSS and the DCP shall automatically force the DCP into Fire Mode, which will override all other active modes of operation. While in Fire Mode, the exhaust fan shall operate at 100% and power will be shunt to the IHF, EGV, and supply fans. In addition, an optional wiring connection is provided in the DCP for 120 VAC to be directed through the microswitch circuit from the DCP to the shunt trip devices to turn off all electrical appliances below the hoods. Settings can be configured from the HMI to automatically shunt power to the hood lights in the event of a FSS actuation. A second microswitch circuit is available to activate the building alarm.