

# User's Manual

V6 SERIES DEMAND CONTROL  
KITCHEN VENTILATION SYSTEM

**ecoAzur**<sup>®</sup>

*intellinox*





## SAFETY INSTRUCTIONS AND NOTES

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**Please read and save these instructions for future reference. Read carefully before attempting to install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with these instructions will result in voiding of the product warranty and may result in personal injury and/or property damage.**

Follow all local electrical, construction and safety codes, as well as the National Electrical Code (NEC) and the latest edition of the National Fire Protection Agency Standard for Ventilation Control Operations (NFPA 96). Follow the Canadian Electrical Code (CEC) and NFPA 96 if installing this product in Canada. Other codes may apply in your country or territory.

The ECOAZUR® Demand Control Kitchen Ventilation control bears the UL safety certification mark, per product category numbers (CCN) YYXS and YYXS7 (Ventilation Equipment for Commercial Cooking Appliances, Hood and Duct Accessories). The following conditions must be met to maintain the ECOAZUR® UL listing:

- The hoods in which the system is installed shall be listed to UL 710 Standard (or ULC-S646 in Canada). The hoods may be rated for low-duty, medium-duty, heavy-duty or extra-heavy-duty cooking, with or without modulating dampers, and may be produced by any hood manufacturer.
- The hoods must be installed in accordance with the manufacturer's specifications and required airflow.
- When the ECOAZUR® System Controller panel is positioned in a control cabinet at either end of a hood, it must be mounted at a minimum height of 915mm (36") above the cooking surface and have a 25mm (1") minimum air gap between the System Controller and the lateral side of the hood. It is not permissible to mount the System Controller on the top surface of the hood.

All penetrations into the hood shall be sealed with UL Listed (YYXS, or YYXS7 in Canada) fittings.

ECOAZUR® Modulating Dampers are not fire dampers and should solely be used as airflow control devices with an ECOAZUR® system.

Cooking appliance shutoff device integration to ECOAZUR® has not been evaluated to the European Directive on Appliances burning gaseous fuels (2016/426/EU). Cooking appliance shutoff device safety interlock must be implemented by a certified third party system in the European Union (by others). Other codes may apply in your country or territory. For more information, contact your Authorized Service Center.

Hoods shall be sized and configured to provide for the capture and removal of flue gas, smoke, vapors and cooking by-products, considering the cooking appliances below them. Although ECOAZUR® is designed to lower the ventilation rate in the kitchen when partial cooking loads are detected, it cannot resolve issues related to inadequate airflow during maximum ventilation.

If more information is needed, contact an Authorized Service Center or a licensed professional engineer before moving forward.

Warnings caution you about conditions which can result in serious injury or death and/or damage to the equipment. They also tell you how to avoid the danger. The warning symbols are used as follows:



**ELECTRICITY WARNING** warns of hazards from electricity which can cause serious injury and/or damage to the equipment.



**GENERAL WARNING** warns about conditions, other than those caused by electricity, which can result in physical injury and/or damage to the equipment.



**WARNING!** The ECOAZUR® system and related equipment should ONLY be installed by qualified personnel. Electrical wiring and connections must be made by a qualified electrician. Commissioning and service must only be performed by personnel that are knowledgeable in the operation of the equipment being controlled and should be aware of general safety precautions.



**WARNING!** The ECOAZUR® system and related equipment should be properly grounded. Improper grounding can result in a risk of electric shock.



**WARNING!** More than one circuit disconnect device may be required to de-energize the equipment before servicing. Dangerous voltage is present when input power is connected to the ECOAZUR® System Controller panel. External wiring can supply dangerous voltages to the terminals of relay outputs (RO1 through RO8).



**WARNING!** Lock out the electrical power supply to all equipment (ECOAZUR® System Controller panel, hood lights, VFDs, motors, etc.) before hood and duct cleaning procedures.



**WARNING!** Dangerous voltage is present when input power is connected to VFDs. After disconnecting the supply, wait at least 5 minutes (to let the intermediate circuit capacitors discharge) before removing the cover.



**WARNING!** Do not expose control panels to any water. Do not allow the electrical components of this system to come in contact with oil, grease, hot surfaces, water or chemicals.



**WARNING!** Legal regulations and regulations issued by authorities must be observed during installation.



**WARNING!** The ECOAZUR® system does not include a disconnect device. A means to disconnect input power must be installed between the AC power source and the ECOAZUR® system.

The branch circuit protection must:

- Be sized to conform to applicable safety regulations, including, but not limited to, both national and local electrical codes.
- Be locked in the open position during installation and maintenance work.



**WARNING!** The overall design of the installation must include emergency stop devices and/or any other safety equipment when required by your local jurisdiction.

Pressing the **STOP** key on the ECOAZUR® system keypad does NOT:

- Generate an emergency stop of the system.
- Separate the system from dangerous potential.



**WARNING!** Never pressure wash the ECOAZUR® components, including the optic sensors.



**WARNING!** It is the responsibility of the installer to make sure both electrical and gas appliances shut down in the event of a fire or a power loss to the building when this sequence is required by the authority having jurisdiction.



**WARNING!** Verify the site can supply the necessary power for each fan and the control panel.



**WARNING!** Ensure that all electrical switches and system components (including access doors) are returned to an operable state after the cleaning procedure.



**WARNING!** The ECOAZUR® system will start up automatically after an input voltage interruption. Dampers and exhaust fans may automatically be energized.



**WARNING!** The ECOAZUR® device enclosures may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user. Never attempt to repair a malfunctioning ECOAZUR® part, including any other related equipment such as VFDs (Variable Frequency Drives), dampers, motors, fans, etc.; contact your local Authorized Service Center for repair or replacement.



**WARNING!** Do not stare at the ECOAZUR® optic sensor light.



**WARNING!** In case of the occurrence of any problem, contact your local Authorized Service Center.

For more information concerning your ECOAZUR® DCKV control system, contact your Authorized Service Center.

Read and understand instructions provided with any other equipment related to the ECOAZUR® DCKV control system.

## Receiving

Upon receiving the product, check to ensure all items are accounted for by referencing the delivery receipt or packing list. Inspect each crate or carton for shipping damage before accepting delivery. Alert the carrier of any damage detected. The customer will make a notation of damage (or shortage of items) on the delivery receipt and all copies of the bill of lading, which is countersigned by the delivery carrier. If damaged, immediately contact your Intellinox distributor or representative. Any physical damage to the unit after acceptance is not the responsibility of Intellinox Technologies Inc.

## Storage

Units are protected against damage during shipment. If the unit cannot be installed and operated immediately, precautions need to be taken to prevent deterioration of the unit during storage. The user assumes responsibility for the unit and accessories while in storage. The manufacturer will not be responsible for damage during storage.

The ideal environment for storing the hood and hood accessories is indoors, above grade, in a clean, dry atmosphere that is sealed from the elements. While in storage, inspect equipment routinely. If any moisture, dirt or other accumulations are found on the hood or any of the parts, the source should be located and eliminated.

## Unpacking

Verify that all required parts and the correct quantity of each item have been received. If any items are missing, report shortages to your Authorized Service Center to arrange for obtaining missing parts.

Remove all other shipping/packing materials.

## Prior to Installation

Prior to installation, check with the authorities having jurisdiction on clearance requirements for structures surrounding the hood and other equipment. Consider access for servicing the equipment and the different components when locating the hood and duct accessories.

Electrical components with electrical connections shall be readily inspectable after the exhaust hood installation.

## Handling

Units are to be rigged and moved by the lifting brackets provided or by the skid when a forklift is used. The location of brackets varies by model and size. Handle in such a manner as to keep from scratching or denting. A damaged finish may reduce the ability of the unit to resist corrosion.

## Preventive Maintenance Program

The ECOAZUR® system requires a yearly inspection and preventive maintenance program to ensure safety and optimal performance. Contact your Authorized Service Center.

## Product Disposal (W.E.E.E. Directive)

At the end of their useful life, the packaging and product should be disposed of via a suitable recycling center. Do not dispose of with household waste. Do not burn. All locally valid regulations and requirements must be observed.

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## INTRODUCTION

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The purpose of this User's Manual is to equip the reader with the essential knowledge required for operating the ECOAZUR® V6 DCKV (Demand Control Kitchen Ventilation) system. Additionally, this document provides guidance on maintenance and troubleshooting of the ECOAZUR® control system.

Should the need for further information arise, the following reference materials are available:

- ECOAZUR® Product Specifications (E6PS-EN) - Details on product design characteristics
- ECOAZUR® Installation Manual (E6IM-EN) - Guidelines for mechanical installation
- ECOAZUR® Programming Guide (E6PG-EN) - Instructions for parameter setup and navigating interfaces
- ECOAZUR® Electrical Diagrams - Project-specific wiring instructions

The ECOAZUR® control system interfaces with third-party devices, such as Variable Frequency Drives, Electronically Commutated Motors, fans, hood fire suppression systems, cooking appliance shutoff devices, and other equipment. It is recommended to consult the manufacturer's specific documentation and instructions for the safe and proper operation and maintenance of these devices.

## ABBREVIATIONS

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The following abbreviations are used throughout this document:

BMS:	Building Management System
CS:	Current Switch
DCKV:	Demand Control Kitchen Ventilation
ECM:	Electronically Commutated Motor
HC:	ECOAZUR® Hood Controller
IB:	ECOAZUR® Iris Bleu® Optic Sensor
KP:	ECOAZUR® Keypad
MD:	ECOAZUR® Modulating Damper (exhaust duct)
NC:	ECOAZUR® Network Cable
PS:	ECOAZUR® Power Supply
PT:	ECOAZUR® Pressure Transmitter
RS:	ECOAZUR® Room Sensor
RTU:	Roof Top Unit
SC:	ECOAZUR® System Controller
TT:	ECOAZUR® Temperature Transmitter
VB:	Variable air volume Box (supply duct)
VFD:	Variable Frequency Drive

## EQUIPMENT DESCRIPTION

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The ECOAZUR® Demand Control Kitchen Ventilation control system is a sophisticated solution designed to optimize the performance of commercial, institutional and industrial kitchens. Its primary purpose is to accurately measure cooking activity and adjust the exhaust and supply airflow accordingly, ensuring a comfortable and safe environment while minimizing energy consumption. The system is specifically engineered for installation in grease hoods (Type 1), ensuring that stringent industry standards such as NFPA 96 and UL 710 are met.

ECOAZUR® offers exceptional safety and convenience with its ability to control hood lights, manage cooking appliance electrical shutoff devices, and integrate off override key switch stations. The system may also be interlocked to respond to dangerous gas concentrations when linked to third-party gas monitors such as CO or natural gas sensors. Moreover, ECOAZUR® has the capability to integrate a wide range of ambient transmitters, including temperature, humidity, VOC, and CO<sub>2</sub> sensors, allowing for highly accurate monitoring and control of the kitchen environment. This enables optimal comfort and energy efficiency while providing a safe and healthy atmosphere for the kitchen staff.

The ECOAZUR® DCKV control system is composed of various essential components:

- **System Controller (SC).** At the heart of the system is the SC, which serves as the central processor unit, orchestrating the functions of the other components.
- **Keypad (KP) or Touch Screen.** The KP or Touch Screen provides a user-friendly interface for controlling and monitoring the system.
- **Temperature Transmitter (TT).** The TT is an important component that senses the hood temperature in the hood tank or collar.
- **IRIS BLEU® (IB).** The IB is a sophisticated optic sensor that operates in a pair of emitter and receptor to detect smoke and vapor in the hood tank. It provides valuable information, particularly when operating the ventilation system at lower airflow rates. With its precision detection capabilities, the IB is an essential component of the DCKV control system, allowing it to achieve energy efficiency safety.
- **Network Cables (NC).** The NC network cables are designed with characteristics specific to the ECOAZUR® control system and hood environment. They greatly facilitate the system's wiring, ensuring seamless communication and coordination between the different elements of the system. This helps streamline the installation process and optimize the system's performance as a whole.

The ECOAZUR® DCKV control system can be customized to meet the specific needs of your kitchen with the addition of the following components:

- **Hood Controller (HC).** The HC is a control unit that can be mounted on a hood to enhance the capabilities of the SC and to reduce the total NC cable length required on site. Essentially, an HC acts as a hub by relaying information from other intelligent devices such as HCs, KPs, sensors and

dampers.

- **Lite Keypad (Lite KP).** A Lite KP is a simplified version of the KP keypad, without a display. It enables the user to control a specific hood or a set of hoods within the ECOAZUR® system.
- **Current Switch (CS).** The CS serves as an alternative method for monitoring the operation of a fan or for detecting the operation of a kitchen appliance.
- **Room Sensors (RS).** RS sensors refer to a collection of various sensors that can measure a range of parameters such as ambient temperature, humidity, VOC (volatile organic compounds), CO (carbon monoxide), CO<sub>2</sub> (carbon dioxide), and CH<sub>4</sub> (natural gas or methane).
- **Modulating Damper (MD).** The MD is a motorized damper installed in an exhaust duct or in a hood collar, used to regulate the airflow of a specific hood or hood section. It is listed for use in grease hood and grease duct applications and features a patented retractable design that facilitates safe and easy installation in retrofit applications.
- **Pressure Transmitter (PT).** The PT is a device designed to measure static pressure in different parts of the ventilation system. Various PT models can measure pressure in the supply duct, exhaust duct, and behind the hood filters.
- **Power Supply (PS).** The PS is a power supply panel that provides power to the HCs that support MDs and/or VBs.

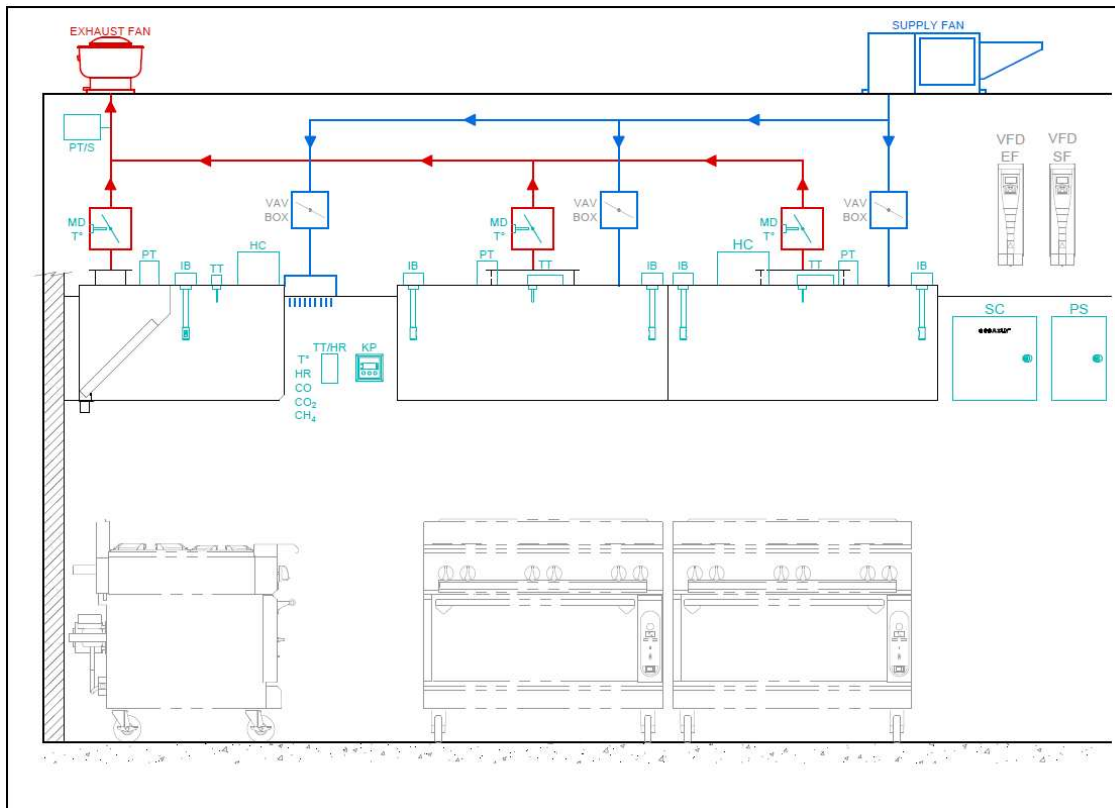


Figure 1 – ECOAZUR® COMPONENTS

## SEQUENCE OF OPERATION

The ECOAZUR® DCKV control system optimizes the energy efficiency and comfort of professional kitchens by adjusting the airflow rates of the exhaust and supply air systems in response to the cooking activity below each hood. This is achieved through precise control of exhaust and supply fan speed, as well as the position of exhaust dampers (MDs) and supply dampers (VBs) when applicable.

A combination of temperature and optic sensors allows for a wide airflow modulation range, typically from 30% to 100%, leading to increased savings. During non-cooking periods, the exhaust fan reduces speed to the PREPARATION pre-set speed and then stop in IDLE mode, after the set time elapses. In IDLE mode, the system remains in standby, and continuously monitoring cooking activity, and automatically switches to PREPARATION and COOKING modes as needed to comply with NFPA 96<sup>1</sup> and the International Mechanical Code<sup>2</sup>. The following is a graphical representation of the complete sequence of operation:

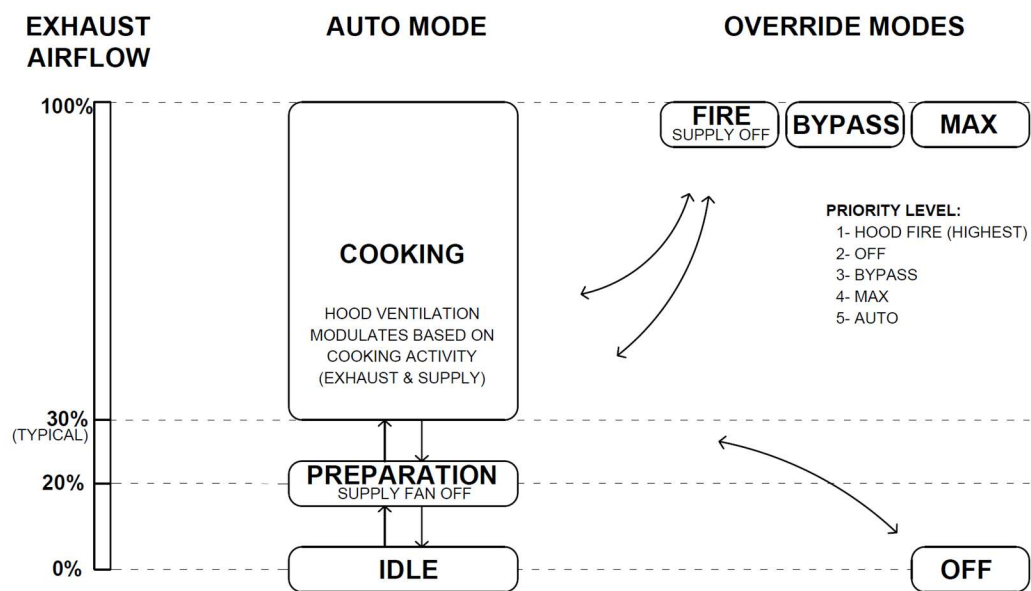


Figure 2 – FULL SEQUENCE OF OPERATION

During normal operation, all MDs belonging to the same exhaust fan will enter PREPARATION mode and COOKING mode simultaneously. This ensures that a minimum airflow of 2.54m/s (500 ft/min) is maintained in exhaust ducts under cooking conditions, as required by NFPA 96<sup>3</sup>.

<sup>1</sup> NFPA 96-2021, 8.2.3.3

<sup>2</sup> IMC-2021, 507.1.1

<sup>3</sup> NFPA 96 2021, 8.2.1.1

By default, PREPARATION mode is disabled, leading to the Basic Sequence of Operation:

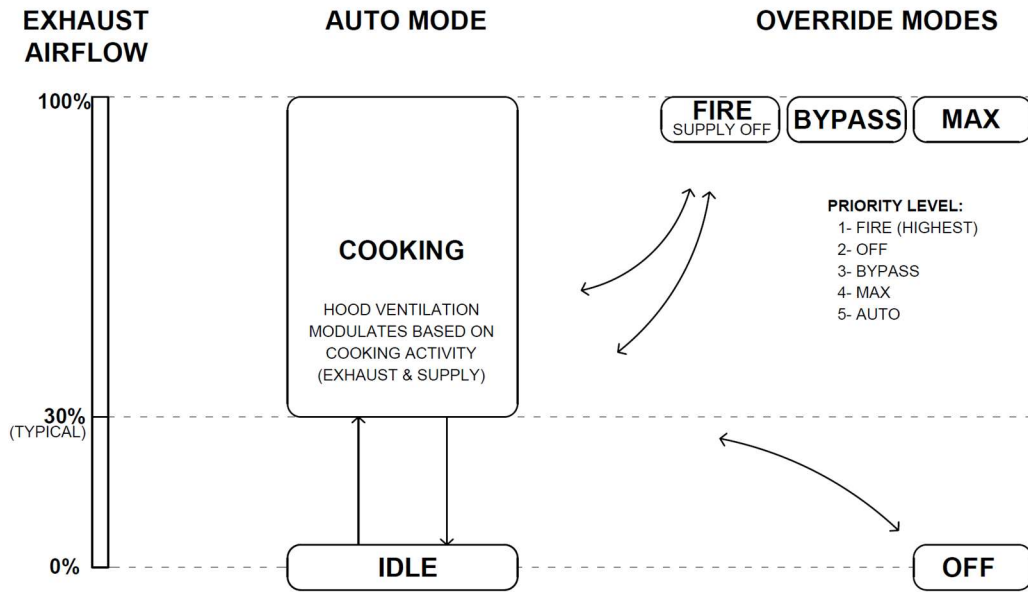


Figure 3 – BASIC SEQUENCE OF OPERATION

## NORMAL OPERATION

### PREPARATION Mode

In **PREPARATION** mode, an exhaust fan typically operates at 20% speed while the associated make-up air unit remains off. During this time, supply air from other areas of the building (transfer air) or from equipment such as RTUs (Rooftop Units) is necessary to maintain neutral kitchen pressure. This approach helps prevent the make-up air unit from starting until actual cooking activity is detected. **PREPARATION** mode is also used to allow cooking equipment to cool down after cooking operations, maintaining minimal exhaust while the make-up air unit is turned off. This ensures a smooth transition before fully stopping kitchen ventilation. The exhaust airflow in **PREPARATION** mode is often set to match the volume of transfer air provided to the kitchen when operating the ventilation at maximum airflow.

An exhaust fan transitions from **IDLE** to **PREPARATION** mode when one or more of the following conditions are met:

- A related hood temperature sensor reads a temperature of 5°C (9°F) above the kitchen ambient temperature (factory default setting).
- A Preparation Schedule is active and requires the fan to run in at least **PREPARATION** mode. Schedules may be internal to ECOAZUR®, or originate from the BMS via BACnet/Modbus communication, or through digital or analog inputs.

An exhaust fan transitions from **COOKING** to **PREPARATION** mode under the following conditions:

- When sensors have stopped reading cooking activity (**COOKING** state) for longer than 15 minutes (factory default setting for **COOKING OFF DELAY**). A temperature hysteresis of 1°C (1.9°F) is applied to avoid short cycling. For example, if **COOKING** mode is triggered when the hood temperature rises 6°C (10.8°F) above ambient, the system returns to **PREPARATION** mode when the hood temperature drops below 5°C (9°F) above ambient for more than 15 minutes.
- A Cooking Schedule (either internal or from the BMS) becomes inactive while no cooking activity is detected. This bypasses the **COOKING OFF DELAY**; however, the temperature hysteresis still applies.
- The **STOP** key on the ECOAZUR® keypad or Touch Screen is pressed while no cooking activity is detected. This also bypasses the **COOKING OFF DELAY**, though the temperature hysteresis remains active. Note: Multiple keypads may be installed, and each may control specific ventilation equipment only.

**NOTE:** By default, **PREPARATION** mode is disabled in the parameter settings.

## COOKING Mode

In COOKING mode, the exhaust fan is typically set to modulate between 30% and 100% speed (18–60 Hz or 15–50 Hz), or 50% to 100% speed (30–60 Hz or 25–50 Hz), depending on the type of cooking equipment and the ventilation design (including hood, ducts, and fans).

When no exhaust modulation dampers (MD) are used, the exhaust fan speed corresponds to the greatest demand among all related hood sensors (temperature, optics, etc.).

When exhaust MDs are used, each exhaust MD airflow setpoint is determined by the greatest demand among all its related hood sensors. The ECOAZUR® system will control the exhaust fan speed to maintain the proper static pressure in the main exhaust duct, downstream of the MDs. In order to maintain sufficient air velocity in the exhaust duct system during cooking operations, all dampers linked to the same exhaust fan will be forced to enter COOKING mode simultaneously as soon as a cooking condition is detected. This ensures that the exhaust duct air velocity remains above 500 ft/min as prescribed by NFPA 96<sup>4</sup>.

In all cases, make-up air units are controlled as a function of their related exhaust fans to maintain a neutral pressure in the kitchen space. A desired exhaust-to-make-up air ratio may be programmed in the ECOAZUR® system, thus the transfer air varies proportionally to the exhaust fan. The transfer air may also be set to remain at a constant as soon as the exhaust fan is turned ON.

The following conditions will switch an exhaust fan to COOKING mode:

- The AUTO key is pressed on the ECOAZUR® keypad. All the exhaust fans controlled by the keypad will transition to COOKING mode.
- A related hood temperature sensor reads a temperature of 6°C (10.8°F) above the kitchen ambient temperature (factory default setting).
- A related optic sensor detects cooking activity, such as smoke or vapor generated by the cooking equipment.
- A Cooking Schedule becomes active and requires the fan to run in at least COOKING mode. Schedules may be internal to ECOAZUR®, or originate from the BMS via BACnet/Modbus communication, or through digital or analog inputs.

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<sup>4</sup> NFPA 96-2017, 8.2.1.1

## IDLE Mode

In IDLE mode, the exhaust and supply fans are off. The hood sensors remain on standby, ready to detect any preparation or cooking activity and automatically turn on the ventilation.

The following conditions will switch an exhaust fan to IDLE mode:

- Hood sensors have stopped detecting **PREPARATION** conditions for more than 15 minutes (factory default setting for **PREP OFF DELAY**). To prevent short cycling due to temperature fluctuations, a 1°C (1.9°F) hysteresis (factory default) is applied. For example, if **PREPARATION** mode is triggered at 5°C (9°F) above the kitchen ambient temperature, the system will switch to **IDLE** when the hood temperature drops below 4°C (7.2°F) above ambient for more than 15 minutes.
- A Preparation Schedule (either internal or from the BMS) becomes inactive while no preparation activity is detected. This bypasses the PREP OFF DELAY; however, the temperature hysteresis still applies.
- The STOP key on the ECOAZUR® keypad or Touch Screen is pressed while no cooking or preparation activity is detected. This also bypasses the PREP OFF DELAY or COOK OFF DELAY, though the temperature hysteresis remains active. Note: Multiple keypads may be installed, and each may control specific ventilation equipment only.

**NOTE:** By default, IDLE mode is enabled in the parameter settings. **IDLE** mode may be disabled.

## TYPICAL OPERATION SCENARIO

At the start of each day, the ECOAZUR® DCKV system begins in IDLE mode. If the hood temperature rises above the configured threshold, the system automatically switches the corresponding exhaust fan and all its associated modulating dampers (MDs) to PREPARATION mode. If no significant heat is detected and the hood cools down, the system reverts to IDLE mode after a predefined delay.

During PREPARATION mode, the system provides minimal ventilation—typically operating the exhaust fan at 20% speed—while the make-up air fan remains OFF. Transfer air from the building or rooftop units is used to maintain neutral pressure in the kitchen.

As cooking activity increases, the system seamlessly transitions to COOKING mode. The exhaust fan speed is modulated within the cooking airflow range, typically between 30% and 100%. At this point, the make-up air fan is turned ON and controlled to maintain neutral kitchen pressure.

Each temperature transmitter (TT) uses defined COOKING SPAN MIN and COOKING SPAN MAX values to convert temperature readings into airflow demands. These values determine how the system translates temperature into the required ventilation rate through linear interpolation.

- COOKING SPAN MIN corresponds to the temperature that demands 30% airflow.
- COOKING SPAN MAX corresponds to the temperature that demands 100% airflow.

If smoke or vapor is detected by the IRIS BLEU® optic sensor, ECOAZUR® immediately increases the exhaust to full capacity (100%) to ensure a safe and comfortable working environment. The ECOAZUR® processor continuously retains the highest sensor demand among all related sensors for a given exhaust fan or modulating damper (MD).

When the cooking activity stops, the system detects the temperature drop and transitions back to PREPARATION mode (typically 20% airflow), reducing energy consumption while maintaining minimal ventilation. If no further cooking activity is detected, the system eventually returns to IDLE mode, ready for the next cooking cycle.

If cooking activity resumes during PREPARATION mode, the system automatically transitions back to COOKING mode as needed.

The following is an example of how ECOAZUR® operates kitchen ventilation based on fluctuations of a hood temperature sensor.

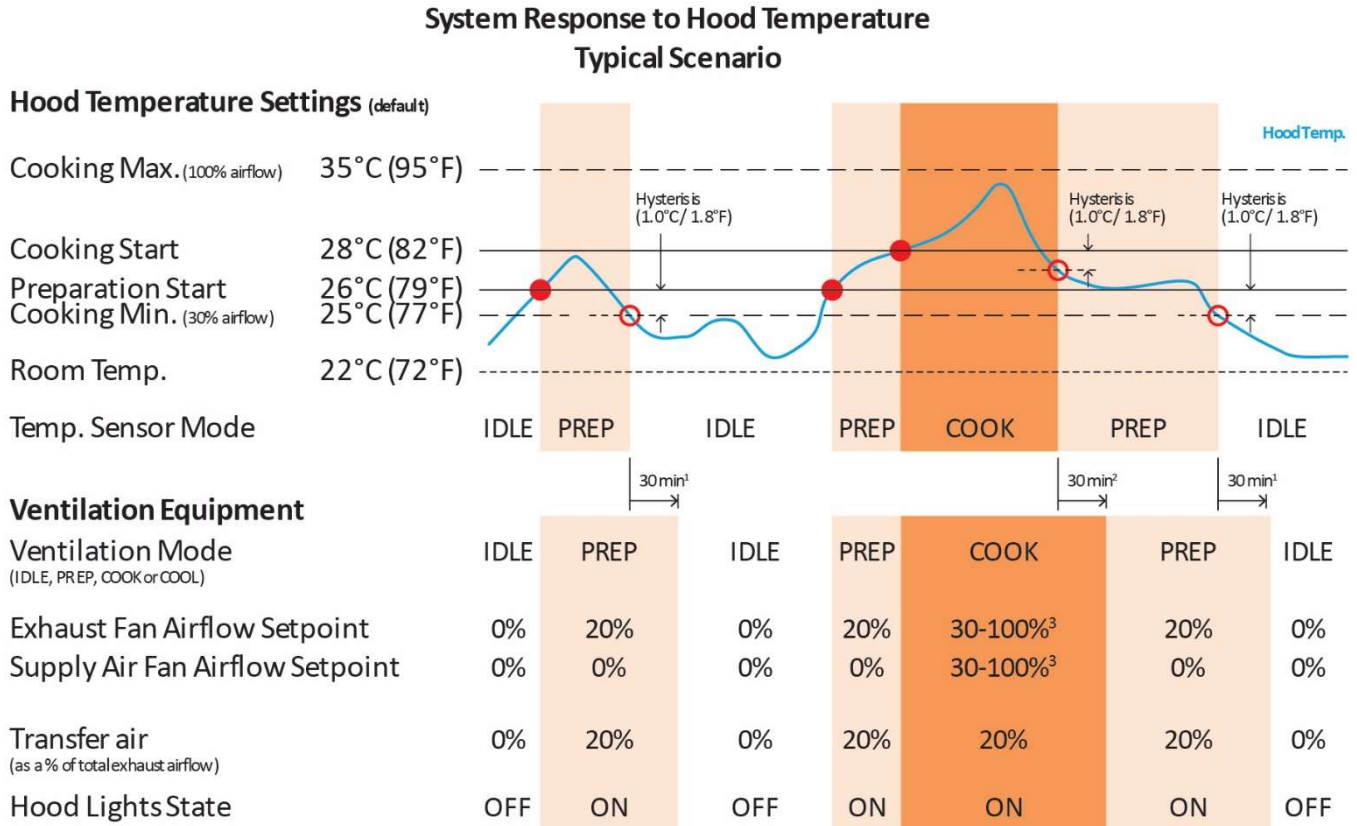


Figure 4 – ECOAZUR® TYPICAL SCENARIO

<sup>1</sup>Prep off-delay setting  
<sup>2</sup>Cooking off-delay setting  
<sup>3</sup> Airflow varies linearly from 30% to 100% as the temperature sensor varies from 25°C to 35°C (Cooking Min and Cooking Max settings)

## VERRIDE MODES

The override modes of ECOAZUR® are presented below, in decreasing order of priority:

1. FIRE OVERRIDE
2. OFF OVERRIDE
3. BYPASS OVERRIDE
4. WASH OVERRIDE
5. MAX OVERRIDE

### FIRE OVERRIDE

FIRE OVERRIDE has the highest priority among all other operation modes. The ECOAZUR® System Controller continuously monitors the hood fire-extinguishing system through a dedicated normally closed micro-switch connected to terminals “FA1” and “FA2”. FIRE OVERRIDE is activated when the micro-switch opens, causing “FA2” to lose power, forcing the following equipment state:

Equipment Type	Equipment State in FIRE OVERRIDE
Cooking Appliance(s) (shutoff device(s))	De-energized (low-level interlock)
Exhaust fan(s)	Forced to 100% speed
Supply fan(s)	Forced to stop (low-level interlock)
Hood light(s)	De-energized (low-level interlock)
Exhaust damper(s)	De-energized, fail-open position (low-level interlock)
Supply damper(s)	De-energized (low-level interlock)
Hood sensor(s), hub(s), keypad(s) connected to System Controller ports “HN1” through “HN6”	De-energized (low-level interlock)
Hood sensor(s), hub(s), keypad(s) connected to System Controller ports “HN7” and “HN8”, with jumper “HN7, HN8” jumper in position “2-3”	De-energized (low-level interlock)
Hood sensor(s), hub(s), keypad(s) connected to System Controller ports “HN7” and “HN8”, with jumper “HN7, HN8” jumper in position “1-2”	<p>Hood sensors, hubs, and keypads remain energized. Keypads will display “FIRE ALARM” along with an audible alarm. The keypad LED status will be the following:</p> <p>Keypad (KP) Red LED ON indicating the fire-extinguishing system is in “DISCHARGE” position.</p> <p>Keypad (KP) Blue LED OFF indicating the cooking appliances are de-energized.</p>

The ECOAZUR® system has the capability to perform the fuel and electric power shutoff in compliance with NFPA 96<sup>5</sup>. This is accomplished by interlocking the power to the shutoff device responsible to de-energize the cooking appliance contactor and electric gas valve (components are required to be listed for the application). Thus, any cooking appliances interlocked by the ECOAZUR® System Controller will be de-energized when the fire-extinguishing system is in the “DISCHARGE” position.

When the fire-extinguishing system is returned to the “ARMED” position (“FA2” is energized), the ECOAZUR® keypad will allow a manual reset in order to apply power to the cooking appliances shutoff devices. Once the user presses the “RESET” key, a buzzer will be heard along with a message informing that the gas pilots require to be lit immediately. Refer to the COOKING APPLIANCE section for more details.



Figure 5 – ECOAZUR® KEYPAD

## OFF OVERRIDE

The building fire alarm signal and Off Override Station shall have the ability to force the kitchen ventilation and the cooking appliances to shut down. OFF OVERRIDE has the second highest priority after FIRE OVERRIDE. Should the hood fire suppression system discharge while the system is in OFF OVERRIDE, the exhaust fans will be forced at 100% airflow despite the OFF OVERRIDE signal (or as prescribed by the authorities having jurisdiction).

OFF OVERRIDE is maintained regardless of ECOAZUR® keypad commands or hood sensor activity. When the OFF OVERRIDE signal returns to the normal state, the ventilation will be released to normal operation. Cooking appliances shall require a manual reset in order to be energized (if applicable).

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<sup>5</sup> NFPA 96-2021, 10.4

**IMPORTANT:** OFF OVERRIDE shall not be used as a means for disconnecting power to ventilation or cooking equipment during service or maintenance. A formal lock-out procedure shall be followed to ensure all equipment are de-energized prior to servicing.

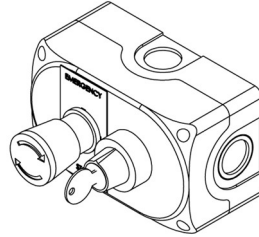


Figure 6 - V6KP-410 OFF OVERRIDE STATION

### BYPASS OVERRIDE

The ECOAZUR® system continuously monitors the system bypass switch (“NORMAL/BYPASS” switch) as well as any bypass requests originating from a third-party system (“BY1” / “BY2” terminals of the System Controller). BYPASS OVERRIDE has the third highest priority (after FIRE OVERRIDE and OFF OVERRIDE) and forces all ventilation equipment to operate at 100% airflow. This mode may be used in abnormal situations such as when a VFD is running in bypass mode. BYPASS OVERRIDE also ensures that all exhaust dampers are fully open by de-energizing their electrical circuits, just like the FIRE OVERRIDE. In BYPASS OVERRIDE, the ECOAZUR® system will not initiate any hood wash cycles.

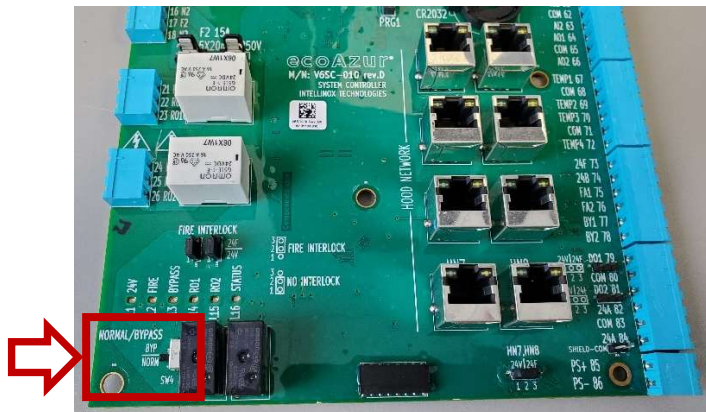


Figure 7 - SYSTEM BYPASS SWITCH

## WASH OVERRIDE

The ECOAZUR® System Controller supports two (2) different customizable cleaning cycles. A hood cleaning cycle is a control sequence that operates the ventilation equipment at various levels while also spraying water and cleaning agent at predetermined moments. The WASH OVERRIDE sequence has the fourth highest level of priority and has the ability to override MAX OVERRIDE. Generally, the WASH OVERRIDE mode will last a short period of time, between 5 and 10 minutes and may be initiated in different ways:

- **WASH Button.** The WASH button on a Touch Screen is pressed.
- **Digital Input.** A wash cycle may be initiated by a System Controller digital input.
- **BMS interface.** A wash cycle may be initiated by a BMS request (BMS writes to ECOAZUR®).
- **Schedule.** A wash cycle may be programmed for a specific moment of the day.
- **Run Time.** A wash cycle may be initiated when a fan operation cumulates a pre-determined number of hours of operation(factory default is 8 hours).



Figure 8 - WASH SEQUENCE

A wash cycle will abort in the following situations:

- The WASH OFF button on the Touch Screen is pressed.
- An override mode such as FIRE OVERRIDE, STOP OVERRIDE or BYPASS OVERRIDE is active.
- The ECOAZUR® system has detected cooking activity or has issued a warning forcing the ventilation to run.
- The MAX button on the Keypad or Touch Screen is pressed after the wash cycle has initiated.

The ECOAZUR® will automatically attempt to initiate a complete wash cycle three times (factory default), with a minimum of 30 minutes (factory default) between each attempt.

A WASH OPTIMIZER function may be set to skip up to two (factory default) water wash cycles if the system does not measure any significant pressure changes in the exhaust system during the daily operation hours.

## MAX OVERRIDE

Should the hood exhaust rate appear to be insufficient at any moment, the ventilation may be forced to 100% airflow for a predetermined amount of time (factory default is 15 minutes). The supply fans will adjust automatically to the required airflow to maintain a neutral static pressure in the kitchen. Unlike BYPASS OVERRIDE, MAX OVERRIDE is a software override and maintains power to all exhaust modulation dampers (equivalent to a 100% demand from sensors).

MAX OVERRIDE may be initiated in different ways:

- **Keypad or Touch Screen.** MAX OVERRIDE may be initiated by pressing the MAX key. The ventilation will automatically return to normal operations after a predetermined amount of time (factory default is 15 minutes).
- **Digital Input.** MAX OVERRIDE may be initiated by a System Controller or hood controller Digital Input.
- **MAX OVERRIDE by the BMS.** MAX OVERRIDE may be initiated by the BMS via BACnet/Modbus communication, or through a digital input.

A wash cycle will interrupt a MAX OVERRIDE only if there is no cooking activity detected. Should the MAX OVERRIDE be initiated while a wash cycle is active, the wash cycle will abort.

## USER INTERFACE

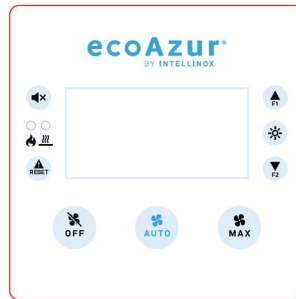
The ECOAZUR® system offers various types of user interface: **Touch Screen**, **Keypad** and **Lite Keypad**.

### Touch Screen



Mounted on the System Controller

### Keypad (KP)



Mounted on the System Controller or Wall mount

### Lite Keypad (Lite KP)



Mounted on the System Controller or Wall mount (no display)

Figure 9 – ECOAZUR® SYSTEM USER INTERFACE

Every ECOAZUR® system is equipped with at least one Touch Screen or Keypad. Additional Keypads or Lite Keypads may be installed in order to view and control the kitchen ventilation and hood lights by zone.

## TOUCH SCREEN

The ECOAZUR® Touch Screen displays a customizable set of ventilation equipment such as exhaust fans, supply fans, exhaust modulating dampers and washing system.

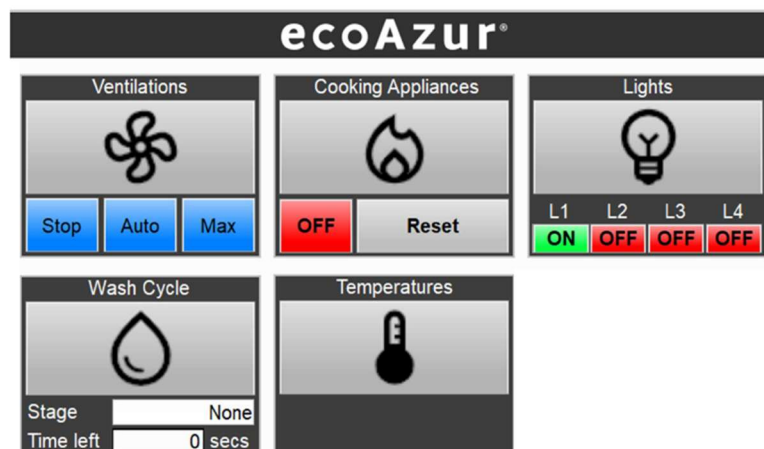


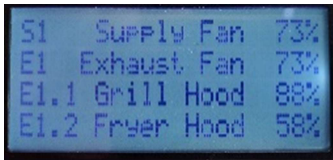
Figure 10 - TOUCH SCREEN MAIN PAGE








## KEYPAD




The ECOAZUR® keypad displays a customizable set of ventilation equipment such as exhaust fans, supply fans, exhaust modulating dampers and supply air VAV boxes. Should a Keypad be assigned to more than four ventilation equipment, the screen will cycle through all appliances, displaying them four at a time.



Figure 11 - V6KP-100 KEYPAD








<p style="text-align: center;"><b>LCD Screen</b></p> 	<p>Each line represents a ventilation equipment, with the following information (left to right): ventilation equipment <b>ID</b>, <b>Description</b>, and current <b>Airflow Setpoint</b>.</p> <p><b>ID</b> - Unique combination of letter and numbers following the rules below:</p> <ul style="list-style-type: none"> <li>▪ Supply fans begin with letter “S” followed by a unique number (S1, S2, S3...)</li> <li>▪ Supply dampers start with the supply fan ID, followed with “.” and a unique number (S2.1, S2.2, S2.3...).</li> <li>▪ Exhaust fans begin with letter “E” followed by a unique number (E1, E2, E3...).</li> <li>▪ Exhaust dampers start with the exhaust fan ID, followed with “.” and a unique number (E1.1, E1.2, E1.3...).</li> </ul> <p><b>Description</b> - User defined ventilation equipment description (maximum 12 characters). When applicable, <b>WARNING!</b> blinks to indicate that maintenance is required to keep the system operating at maximum efficiency. Most warning messages will force a related equipment to 100% ventilation.</p> <p><b>Airflow Setpoint</b> - In normal operation, the required airflow calculated by ECOAZUR® is indicated as a percentage of the specified maximum airflow (0 - 100%). When an override mode is active, the ECOAZUR® keypad indicates the OVERRIDE mode (FIRE, OFF, BYPASS, WASH, or MAX).</p>
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<p><b>Blue LED</b></p> 	<p>The blue LED is ON when the cooking appliances are energized (gas and/or electric), and OFF when the cooking appliances are de-energized.</p> <p>The blue LED remains OFF at all times when the Cooking Appliance Shutoff function is disabled (factory default: DISABLED). When the cooking appliance function is disabled, the cooking appliance safety interlocks must be performed by a third-party system, following the local/national codes applicable in your area.</p>
<p><b>Red LED</b></p> 	<p>The ECOAZUR® System Controller reads the hood fire suppression system in a discharged state when the red LED is ON (ECOAZUR® in FIRE OVERRIDE).</p> <p>The ECOAZUR® System Controller reads the hood fire suppression system in the armed (normal) state when the red LED is OFF.</p>
<p><b>MAX Key</b></p> 	<p>The <b>MAX</b> key forces the ventilation to MAX mode for a predetermined amount of time (factory default setting: 15 minutes).</p>
<p><b>AUTO Key</b></p> 	<p>The <b>AUTO</b> key sets the ventilation to COOKING mode. Any active override mode (FIRE, OFF, BYPASS, WASH or MAX) has priority over the <b>AUTO</b> key.</p>
<p><b>OFF Key</b></p> 	<p>The <b>OFF</b> key attempts to transition the ventilation mode to IDLE when the time delay is the only condition that maintains the equipment in COOKING or PREPARATION mode. This key has no effect when cooking conditions are detected.</p> <p>The <b>OFF</b> key may be disabled (factory default setting: <b>OFF</b> key enabled).</p>
<p><b>SILENCE Key</b></p> 	<p>The <b>SILENCE</b> key allows to silence the Keypad buzzer. (Factory default setting: <b>SILENCE</b> key enabled).</p>
<p><b>RESET Key</b></p> 	<p>The <b>RESET</b> key allows to clear alarms that do not reset automatically, such as fan proof alarms, or high temperature alarms.</p> <p>The <b>RESET</b> key also allows the user to perform a GAS RESET (when applicable). The user must ensure all gas pilots are relit immediately after performing a GAS RESET. Refer to GAS RESET section for more information.</p>

<p><b>LIGHT Key</b></p> 	<p>The <b>LIGHT</b> key allows the user to manually turn ON/OFF the hood light. The system may be installed in a way to allow a specific set of hood lights to be controlled by predetermined keypads (factory default setting: all hood lights).</p>
<p><b>UP Key</b></p> 	<p>The <b>UP</b> key allows to scroll through menus/parameters in the programming environment.</p>
<p><b>DOWN Key</b></p> 	<p>The <b>DOWN</b> key allows to scroll down through menus/parameters in the programming environment.</p>

## LITE KEYPAD

The ECOAZUR® Lite Keypad provides a simplified user interface (no display) having the ability to control a specific set of ventilation equipment and/or hood light circuits. They are typically installed in close vicinity of the hoods they are controlling.

<p><b>Blue LED</b></p> 	<p>The blue LED is ON when the cooking appliances are energized (gas and/or electric), and OFF when the cooking appliances are de-energized.</p> <p>The blue light remains OFF at all times when the Cooking Appliance Shutoff function is disabled (factory default setting: DISABLED). When the cooking appliance function is disabled, the cooking appliance safety interlocks must be performed by a third-party system, following the local/national codes applicable in your area.</p>
<p><b>Red LED</b></p> 	<p>The ECOAZUR® System Controller reads the hood fire suppression system in a discharged state when the red LED is ON (ECOAZUR® in FIRE OVERRIDE).</p> <p>The ECOAZUR® System Controller reads the hood fire suppression system in the armed (normal) state when the red LED is OFF.</p>
<p><b>Orange LED</b></p> 	<p>The orange LED indicates the ECOAZUR® System Controller detects an abnormal situation (Lite Keypad only). The Orange light is ON when an alarm or warning is present, and OFF when no alarm/warning exist.</p>
<p><b>MAX Key</b></p> 	<p>The <b>MAX</b> key forces the ventilation to MAX mode for a predetermined amount of time (factory default setting: 15 minutes).</p>
<p><b>AUTO Key</b></p> 	<p>The <b>AUTO</b> key sets the ventilation to COOKING mode. Any active override mode (FIRE, OFF, BYPASS, WASH or MAX) has priority over this function.</p>
<p><b>OFF Key</b></p> 	<p>The <b>OFF</b> key attempts to transition the ventilation to IDLE mode when the time delay is the only condition that maintains the equipment in COOKING or PREPARATION mode. This key has no effect when cooking conditions are detected.</p> <p>The OFF key may be disabled (factory default setting: OFF key enabled)</p>
<p><b>LIGHT Key</b></p> 	<p>The <b>LIGHT</b> key allows the user to manually turn ON/OFF the hood light. The system may be installed in a way to allow a specific set of hood lights to be controlled by predetermined Keypads (factory default setting: all hood lights).</p>

## COOKING APPLIANCES

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### COOKING APPLIANCE SHUTOFF

The ECOAZUR® System Controller has the ability to perform the fuel and electric power shutoff of cooking appliances, in compliance with NFPA 96<sup>6</sup>. Such listed shutoff devices are required to be of electric type, such as an electric gas valve, a contactor, or a shunt trip breaker.

When this function is required to be performed by ECOAZUR®, the COOKING APPLIANCE SHUTOFF function must be enabled in the parameter setup (factory default setting: disabled). In the case a third-party system is handling the safety of the cooking appliances, the ECOAZUR® COOKING APPLIANCE SHUTOFF function must be set to disabled.

When the hood fire suppression system is in the “DISCHARGE” position, the System Controller terminal “FA2” is de-energised, causing the system to shutoff the cooking appliances:

- Gas Valves de-energized
- Contactors de-energized
- Shunt Trip energized

Likewise, an Off Override Station may be installed to de-energise the System Controller terminal “KS2” when the Off Override Station input reads an open contact (alarm state). This in turn will cause the system to shutoff the cooking appliance and will also shut down all ventilation equipment (OFF OVERRIDE).

Additional functions may also be required under different local jurisdiction:

- Gas Reset
- Cooking Appliances Follow Fans
- Off Override Station
- High Temperature Cooking Appliance Shutoff

### GAS RESET FUNCTION

When the GAS RESET logic is turned ON, the ECOAZUR® System Controller requires a manual reset command in order to engage the electric gas valve, as well as other electric cooking appliances. The GAS RESET will be required when the System Controller recovers from a power outage or when the hood fire suppression system and/or the Off Override Station return to the “ARMED” state. The GAS RESET will also be required every time the fans are turned ON, if the COOKING APPLIANCE FOLLOW FANS logic is enabled.

Every time the GAS RESET is performed, a buzzer will sound, and the APPLIANCES PILOT CHECK warning message will be displayed for 1 minute on the Touch Screen and Keypads, reminding that the user must immediately light the cooking appliance gas pilots. The buzzer and warning message will stop automatically

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<sup>6</sup> NFPA 96-2021, 10.4

after 1 minute or may be silenced and cleared immediately using the SILENCE and RESET key. The GAS RESET is also known as a manual reset and is required per code under various jurisdictions.



*Figure 12 - V6KP-100 SILENCE AND RESET KEYS*

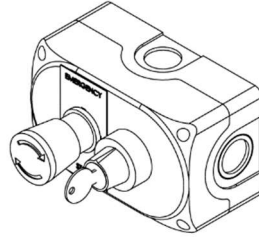
## **COOKING APPLIANCE FOLLOWS FANS**

The COOKING APPLIANCE FOLLOWS FANS logic in ECOAZUR® is designed to de-energize the cooking appliance shutoff devices when a predetermined set of fans are OFF (or have failed to prove a running status for longer than a predetermined time).

Should the Gas Reset logic be enabled, the user will be required to perform a manual reset (GAS RESET) and ignite the cooking appliance pilots every time the fans are turned ON.

## OFF OVERRIDE STATION

An optional Off Override Station (V6KP-410) may be connected to the input terminals “KS1” and “KS2” of the ECOAZUR® System Controller. This station is available to provide means for shutting off the cooking appliances as well as the kitchen ventilation when the Off Override Station button is pressed or when the Key Switch is turned to the OFF position (ECOAZUR® in OFF OVERRIDE). This function is a requirement per code under various jurisdictions.



*Figure 13 - V6KP-410 OFF OVERRIDE STATION*

## HIGH TEMPERATURE COOKING APPLIANCE SHUTOFF

An optional function of the ECOAZUR® System is to enable a high temperature alarm to shut off the cooking appliances. The HIGH TEMPERATURE alarm does not clear automatically and requires the user to press the **RESET** key on the Keypad or Touch Screen.

# OPERATION INSTRUCTIONS

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## BEGINNING OF KITCHEN OPERATION

At the beginning of the operation period:

- Press the **AUTO** key to start ventilation in **COOKING** mode. The hood lights will turn on automatically.
- Turn on the cooking appliances. **ECOAZUR®** will automatically adjust the kitchen ventilation according to the sensed cooking activity. Should the user forget to start the ventilation using the **AUTO** key, **ECOAZUR®** will automatically start the ventilation as soon as cooking activity is sensed. Hoods lights will also turn on automatically.
- A **GAS RESET** may be required if the cooking appliances are integrated to **ECOAZUR®**. When prompted by **ECOAZUR®**, press the **RESET** key to perform a **GAS RESET** and allow for **ECOAZUR®** to energize the cooking appliances. The keypad buzzer will sound for 1 minute, and a warning message will remind the user that the cooking appliance gas pilots must be lit immediately. The user may silence the buzzer by pressing on the **SILENCE** key, and press **RESET** to clear the warning message.

## DURING KITCHEN OPERATION

During the kitchen operation period:

- The hood exhaust systems will automatically adjust to the sensed cooking load (temperature, vapor and smoke) by varying fan speeds and damper positions (if applicable).
- The supply air units will adjust their airflow to the kitchen based on their related exhaust fan airflow.
- The user may press the **MAX** key at any moment to override the hood ventilation to 100% (**MAX OVERRIDE**). The system will automatically return to normal operations after a predetermined amount of time (typically 15 min or 60 min).

## END OF KITCHEN OPERATION

When kitchen operation is over:

- The kitchen ventilation will automatically switch from **COOKING** to **PREPARATION**, and ultimately to **IDLE** when sensor activity and timers allow.
- Lights will automatically turn off when all exhaust fans have reached **IDLE** mode.
- The user may bypass off-delays by pressing the **STOP** key when no cooking activity is detected.
- If the cooking appliances are integrated to **ECOAZUR®**, and programmed to follow the fan status, they will be de-energized as soon as the fan are commanded to stop (or upon loss of fan proof).

## **MAINTENANCE & CLEANING**

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### **TEMPERATURE SENSORS**

Temperature sensors (TT) may be located in the hood collar as well as in the hood canopy. Temperature probes rarely require cleaning. Should grease or other contaminants build up, clean the temperature probes and visible surfaces of the fitting using a cloth and soap. A good practice is to ensure that the hood cleaning procedures include cleaning the temperature probe areas.

### **OPTIC SENSORS**

Optic sensors (IB) are typically located at both ends of a hood or a hood section. An optic sensor rarely requires cleaning since it can accommodate an accumulation of grease on its lens. A good practice is to clean the optic lens using light duty soap and a cloth once a month, and to clean the optic sensor body, tube and compression seal during hood cleaning. Do not direct a pressure washer at the optic sensor lens.

No deterioration of system performance will occur due to dirty optic sensors unless an optic sensor is blinking (warning indication on the ECOAZUR® keypad). Refer to the Troubleshooting section for more information on the procedure to follow when an optic sensor is blinking.

### **USER INTERFACE**

The ECOAZUR® user interface (Touch Screen and Keypad) may be cleaned using cloth and light duty soap when necessary. The user interface is not designed to be washed down.

### **SYSTEM CONTROLLER**

If necessary, clean the System Controller with a damp cloth, ensuring that no water enters the enclosure. Replace the coin battery (3V, CR2032, lithium) on the main board once every 10 years to support the Real-Time Clock. If connected to the internet, the system clock will automatically update the time.

### **HOOD AND DUCT PRESSURE TRANSMITTERS**

Proper maintenance includes cleaning the exhaust duct Pressure Transmitter port as part of the hood and exhaust duct cleaning procedure. Do not remove the pressure port or the tube/fixture attached to it when performing cleaning. The pressure ports are designed to facilitate cleaning without disassembling any parts. Contact an Authorized Service Center for any questions related to the maintenance of hood and duct Pressure Transmitters.

Prior to cleaning, make sure to lock out power to the ECOAZUR® System Controller panel as well as to the exhaust and supply fans.

## **EXHAUST DAMPERS**

Proper maintenance includes cleaning the damper blades as part of the hood and exhaust duct cleaning procedure. Prior to this cleaning operation, make sure to lock out power to the ECOAZUR® System Controller panel as well as to the exhaust and supply fans. This will ensure the dampers remain in the open fail-safe position during cleaning.

**NOTE:** In the event a damper does not fully open during cleaning procedures, call a qualified professional to verify the ECOAZUR® V6 Modulating Damper actuator.

## **PREVENTIVE MAINTENANCE PROGRAM**

The ECOAZUR® system requires a yearly inspection and preventive maintenance program to ensure safety and optimal performance. Contact your Authorized Service Center.

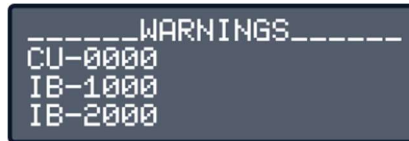
Complete the maintenance log at the end of this manual.

## TROUBLESHOOTING

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Should the ECOAZUR® processor detect any abnormal condition, a WARNING message will be issued on the keypad display or Touch Screen. “WARNING!” will blink to indicate that maintenance is required in order to operate the ventilation system safely, with maximum comfort and energy efficiency.

A warning description may also appear on the Keypad or Touch Screen display:



*Figure 14 – WARNING DISPLAY*

Depending on the nature of the error, ECOAZUR® may force ventilation to 100% speed, in order to ensure proper ventilation. The ECOAZUR® processor may also be programmed to trigger a digital output (or Modbus/BACnet point) based on the ECOAZUR® error status to notify the BMS.

In most cases, WARNING messages require contacting an Authorized Service Center to service the ECOAZUR® system. Systems connected to the INTELLINOX® Cloud service benefit from a fast diagnostic through an internet remote access (not available in all countries).

However, some warnings are related to end-user maintenance and may be addressed by the kitchen personnel.

PROBLEM	CAUSE	SOLUTION
<b>Optic sensors misaligned (IB MISALIGNED)</b>	A very large amount of smoke or vapor is produced, blocking the light beam of the optic pair. The system will issue a momentary WARNING message.	The WARNING message will disappear automatically as soon as the cooking conditions return to normal.
	Optic sensors are misaligned.	Call a qualified professional to ensure the blinking optic sensor pair is aligned and the compression seal is correctly tightened.
	An object is blocking the optic sensor's light beam and is preventing the pair from seeing one another.	Remove the object.  If a component of the fire suppression system is blocking the optic light beam, call a qualified professional to ensure the fire suppression system is correctly fastened to hood.  Call a qualified professional to relocate optic sensors if necessary.
	Optic sensors lenses are dirty.	Use a soft moist cloth to clean optic sensor lenses.
	If none of the previous situations apply.	Call an ECOAZUR® Authorized Service Center to service the system.

PROBLEM	CAUSE	SOLUTION
<b>CONFIGURATION CHANGE COMPONENT DISCONNECTED</b>	Sensor is defective.	Call an ECOAZUR® Authorized Service Center to replace the sensor.
	Sensor cable is damaged or unplugged.	Call a qualified professional to check that the sensors cables are connected.
		Call an ECOAZUR® Authorized Service Center to replace the cable.
<b>Keypad display is blank</b>	Power supply is turned off.	Check for tripped breaker that feeds the ECOAZUR® system.  Call a qualified professional to check for the following: <ul style="list-style-type: none"> <li>- Tripped breaker or fuses inside the ECOAZUR® System Controller.</li> <li>- Keypad cable connection.</li> </ul>
	The hood fire suppression system is in discharged state and the System Controller is configured (jumper) to remove power to the Keypad in FIRE OVERRIDE.	The Keypad will function normally when the fire suppression system is returned to the "ARMED" state.
	Keypad is defective.	Call an ECOAZUR® Authorized Service Center to replace the keypad.

PROBLEM	CAUSE	SOLUTION
<b>Exhaust fan is not running</b>	The Keypad or Touch Screen indicates a fan proving alarm.	The System Controller has not received the require fan proving signals to allow the exhaust fan to run or has lost the exhaust fan proof. Call a qualified professional to inspect or service fans and press the <b>RESET</b> key to acknowledge the fault and try starting fans again.
	The System Controller is in OFF OVERRIDE or WASH OVERRIDE	Verify if the Keypad or Touch Screen indicates the OFF OVERRIDE is active. An abnormal situation is forcing the system to OFF. Call an ECOAZUR® Authorized Service Center if further investigation is required.  Verify if the Keypad or Touch Screen indicates a WASH OVERRIDE. The wash cycle may be aborted by pressing the MAX or AUTO key.
	The exhaust fan electrical circuit is de-energized (typical problem after the hood and duct cleaning operation).	Call a qualified professional to check for the following: <ul style="list-style-type: none"> <li>- Tripped exhaust fan breaker</li> <li>- Exhaust fan VFD operating mode (should be in automatic).</li> <li>- Exhaust fan VFD alarm or trip.</li> <li>- Exhaust fan VFD disconnect.</li> <li>- Exhaust fan motor disconnect.</li> </ul>
	Exhaust fan belt is loose or broken.	Call a qualified professional to check for a loose or broken exhaust fan belt.

PROBLEM	CAUSE	SOLUTION
	No cooking activity is detected.	<p>Press <b>MAX</b> key to force the exhaust fan to start.</p> <p>If the ECOAZUR® system does not detect cooking activity, call an ECOAZUR® Authorized Service Center to service the system.</p>
<b>Supply air is not running</b>	The Keypad or Touch Screen indicates a fan proving alarm.	The System Controller has not received the require fan proving signals to allow the supply fan to run or has lost the supply fan proof. Call a qualified professional to inspect or service fans and press the <b>RESET</b> key to acknowledge the fault and try starting fans again.
	Supply air unit selector switch are not set to operate the unit (if applicable).	Check if the supply air unit selector switch is in the correct position to operate (if applicable). Refer to the manufacturer’s instructions.
	The supply air unit electrical circuit is de-energized	<p>Call a qualified professional to check for the following:</p> <ul style="list-style-type: none"> <li>- Tripped supply air unit breaker.</li> <li>- Make-up air unit VFD alarm or trip.</li> <li>- Supply air unit VFD operating mode (should be in automatic).</li> <li>- Supply air unit VFD disconnect.</li> <li>- Supply air unit motor disconnect.</li> </ul>

PROBLEM	CAUSE	SOLUTION
	Make-up air unit is in fault.	<p>Call a qualified professional to service supply air unit and check for the following:</p> <ul style="list-style-type: none"> <li>- Supply air unit alarm or trip</li> <li>- Supply air unit VFD alarm or trip.</li> <li>- Loose or broken make-up air unit belt.</li> </ul>
<b>Exhaust fan is running, but exhaust air is lacking (too hot or hood spill)</b>	A very large amount of smoke or vapor is produced for a short period.	Press <b>MAX</b> key to override the hood ventilation to 100% ( <b>MAX OVERRIDE</b> ). The system will automatically return to normal operations after a predetermined amount of time (typically 15 min or 60 min).
	An open window or door is causing a draft.	Close windows and doors.
	The hood filters are clogged and required cleaning.	Have the filters cleaned.
	The exhaust fan belt is loose.	Call a qualified professional to check for a loose fan belt exhaust fan.
	Supply air temperature setpoint too high or supply air system overloaded.	Call a qualified professional to check the supply air system.
	ECOAZUR® system display indicates a low airflow setpoint.	Call an ECOAZUR® Authorized Service Center to service the system.
	The modulating damper has failed or is requiring configuration.	Call a qualified professional to check the modulating damper actuator and blade.

PROBLEM	CAUSE	SOLUTION
<p><b>The hood is noisy</b></p>	<p>Hood filters are missing</p>	<p>Replace the missing filters.</p>
	<p>The fan is misaligned or running in the wrong direction.</p>	<p>Call a qualified professional to verify and correct fan rotation direction.</p>
	<p>The hood is over exhausting.</p>	<p>Call a qualified professional to adjust the maximum airflow of the hood and fan.</p>
	<p>The exhaust system pressure port is clogged, or the Pressure Transmitter is defective.</p> <p>The static pressure control loop requires tuning.</p>	<p>Call an ECOAZUR® Authorized Service Center to service the system.</p>
<p><b>Ventilation system remains on after cooking operations</b></p>	<p>Cooking equipment has remained ON.</p>	<p>Ensure the kitchen staff closes all the cooking equipment.</p>
	<p>The ECOAZUR® system is in alarm.</p>	<p>Check if there is an alarm ECOAZUR® keypad.</p> <p>Call an ECOAZUR® Authorized Service Center to service the system.</p>
	<p>ECOAZUR® system temperature thresholds require adjustment.</p>	<p>Call an ECOAZUR® Authorized Service Center to service the system.</p>
	<p>The BMS system is sending a command (schedule, 0-10V, etc.).</p>	<p>Call a qualified professional to check the BMS system.</p>
	<p>A VFD is in HAND mode or bypass mode.</p>	<p>Call a qualified professional to check the VFD.</p>
	<p>The bypass selector on the ECOAZUR® System Controller is ON.</p>	<p>Call a qualified professional to check the bypass selector.</p>

PROBLEM	CAUSE	SOLUTION
<p><b>Cooking Appliance remains OFF</b></p>	<p>The System Controller is not performing the Cooking Appliance Safety Interlock (by a third-party system).</p>	<p>Review the third-party user’s guide. Call a qualified professional if required.</p>
	<p>The System Controller is set to interlock the Cooking Appliance when the fan proof is OFF.</p>	<p>Ensure the fans are running, press AUTO or MAX key if required. Press RESET key to perform the manual reset when prompted. Light the gas pilots of all cooking appliances immediately.</p> <p>Refer to the COOKING APPLIANCE SEQUENCE OF OPERATION section.</p>
	<p>There has been a power outage.</p>	<p>When the power outage recovers, a manual reset will be required to energize the cooking appliances. Ensure the fans are running, press AUTO or MAX key if required. Press RESET key to perform the manual reset when prompted. Light the gas pilots of all cooking appliances immediately.</p> <p>Refer to the COOKING APPLIANCE SEQUENCE OF OPERATION section.</p>
	<p>The fire suppression system is in “DISCHARGE” state.</p>	<p>The cooking appliances will remain OFF as long as the kitchen has not been returned to an operable state. A manual reset will be required when the fire suppression system has returned to an armed state.</p> <p>Refer to the COOKING APPLIANCE SEQUENCE OF OPERATION section.</p>

PROBLEM	CAUSE	SOLUTION
<p><b>Ventilation system is not starting and stopping according to schedule</b></p>	<p>The coin battery in the System Controller is depleted.</p>	<p>Change the coin battery of the System Controller. Use a 3V, CR2032, lithium battery to replace. Replace it once every 10 years.</p>

## ENVIRONMENTAL SPECIFICATIONS

ATTRIBUTE	VALUE
<b>Temperature (operating)</b>	Components specific Refer to ECOAZUR® Product Specifications (E6PS-EN)
<b>Temperature (Storage &amp; Transportation)</b>	-40 to 60°C (-40 to 140°F)
<b>Relative humidity</b>	10% to 90% (non-condensing)
<b>Shock</b>	Not allowed.
<b>Free fall</b>	Not allowed.
<b>Emissions</b>	EN 61000-6-3
<b>Electrostatic Discharge Immunity</b>	IEC 61000-4-2: Contact: 4 kV Air: 8 kV
<b>Radiated Electromagnetic Field Immunity</b>	IEC 61000-4-3: 80 to 1000 MHz: 3V/m 1.4GHz to 2 GHz: 3V/m 2GHz to 2.7 GHz: 1V/m
<b>Electric Fast Transient Immunity</b>	IEC 61000-4-4: Power: ±0.5 kV @ 5 kHz I/O Ports: ±0.5 kV @ 5 kHz Communication Ports: ±0.5 kV @ 5 kHz
<b>Surge immunity</b>	IEC 61000-4-5: Power: ±0.5 kV L-PE / ±0.5 kV L-L I/O Ports: N/A Communication Ports: N/A
<b>Conducted Immunity</b>	IEC 61000-4-6: Power: 3V I/O Ports: 3V Communication Ports: 3V
<b>Power Frequency Magnetic Field Immunity</b>	IEC 61000-4-8: Continuous Field: 30 A/m (60s) 50 Hz & 60 Hz

## COMPLIANCE

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The ECOAZUR® V6 system complies with the IMC (International Mechanical Code), NEC (National Electric Code), CEC (Canadian Electrical Code), and NFPA 96. The system conforms to the following:

- UL 710 - Exhaust Hoods for Commercial Cooking Equipment
- CAN/ULC-S646 – Standard for Exhaust Hoods and Related Controls for Commercial and Institutional Cooking Equipment
- UL 1978 - Grease Ducts
- NSF/ANSI 2 - Food Equipment
- CE Directive 2006/42/EC - Machinery
- CE Directive 2014/30/EU - Electromagnetic compatibility
- CE Directive 2011/65/EU, 2015/863 - RoHS
- EN 60204-1 - Electrical equipment of machines, Part 1: General requirements
  - *Provisions for compliance:* The final assembler of the ECOAZUR® system is responsible for installing:
    - A supply disconnecting device
    - Branch circuit protection
- EN 61000-6-2 (2019) - Generic standards - Immunity for Industrial Environments
- EN 61000-6-4 (2019) - Generic standards - Standard for Industrial Environments
- Electromagnetic Compatibility Regulations 2016 No. 1091
- FCC part 15 subpart B
- ICES-003



## WARRANTY

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Refer to **INTELLINOX TECHNOLOGIES INC. – TERMS AND CONDITIONS OF SALE AND WARRANTY** on the Intellinox website at [intellinox.com](http://intellinox.com).

If you have any questions concerning your ECOAZUR® system, please contact your Authorized Service Center. The technical data, information and specifications are valid at the time of printing. The manufacturer reserves the right to modifications without prior notice.

# MAINTENANCE LOG

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<b>Date:</b> <b>Organization:</b> <b>Notes:</b>	<b>Time:</b>	<b>Date:</b> <b>Organization:</b> <b>Notes:</b>	<b>Time:</b>
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