



PRODUCT SPECIFICATIONS





Adapted from Intelli-Hood System by Melink Corp (USA)

ecosense System Overview

1 SYSTEM CONTROLLER

Receives input from the Touchpad(s) and Hood Controller(s) to control the outputs for the VFDs.



2 HOOD CONTROLLER

Oversees Temperature and Optic Sensors on each hood and sends sensor data to the System Controller via RS-485 communication.



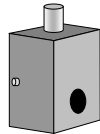
3 Touchpad

Provides switches for operation of hood lights and fans, bypass, monitoring LEDs and programming.



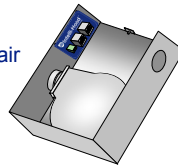
4 OPTIC SENSORS

Monitor the presence of smoke and vapors inside the hood. Send a signal to the Hood Controller to increase fan speed during cooking.



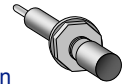
5 AIR PURGE UNITS

Miniature blowers send air into Optic Sensor housings to prevent smoke and grease from collecting on lenses.



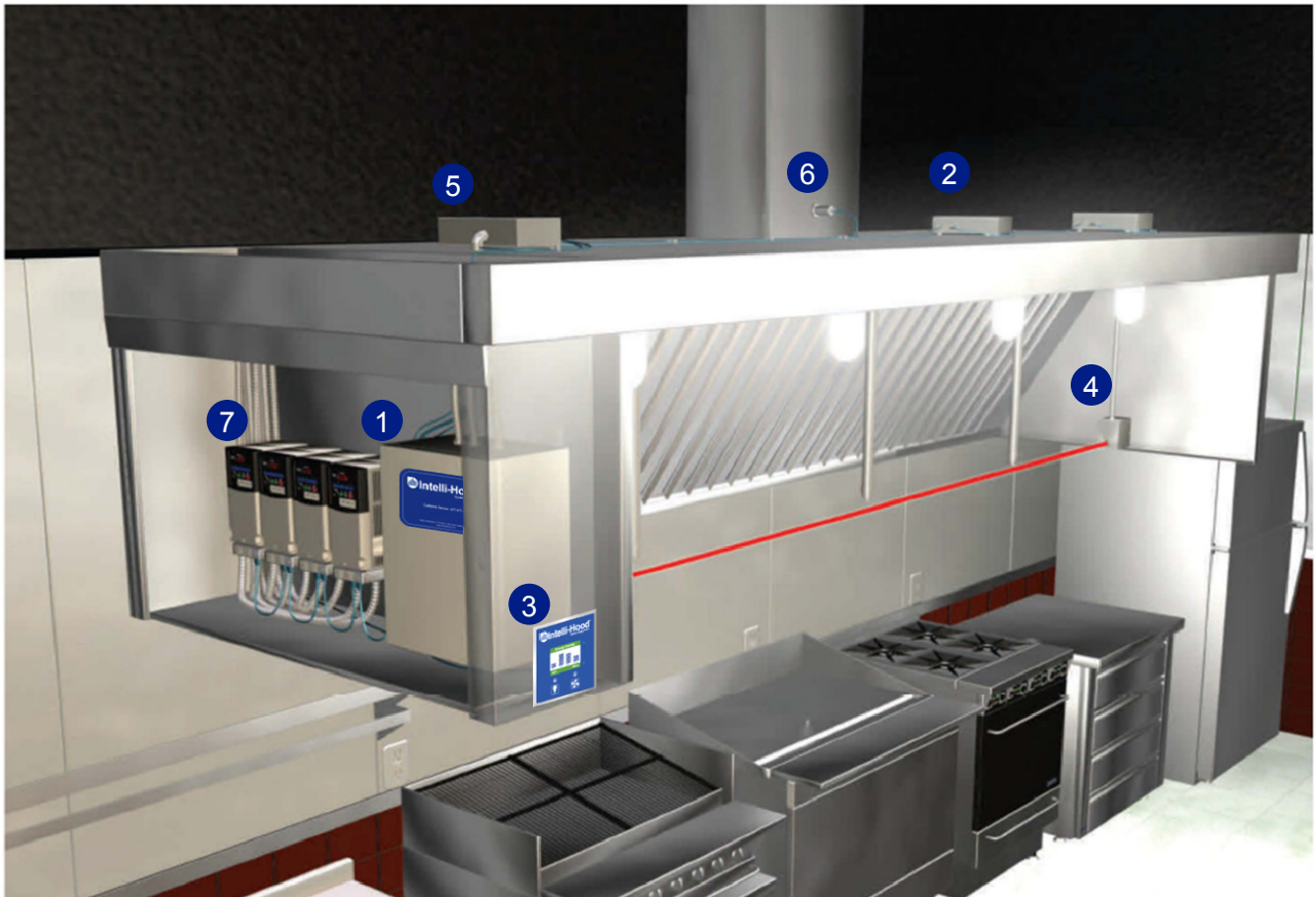
6 TEMPERATURE SENSOR

Monitors the exhaust air temperature in the duct and sends a signal to the Hood Controller to vary fan speed in proportion to heat load.



7 VFDs

Variable Frequency Drives receive signals from the Hood Controller to control the speed of the fans based on heat and smoke load.



•Specifications are subject to change as updates are completed•

System Controller

Functional Description

The System Controller controls the lights and fans for up to 39 Hood Controllers. It is typically mounted above the ceiling and communicates between the hood sensors and VFDs via low-voltage Hood Network Cables. It is also connected to a Touchpad mounted on the front face of one of the hoods for easy user interface.

Control Specifications

Painted enclosure for durable construction and smooth finish

Communicates to Hood Controller(s), Touchpad(s), Temp Sensor(s), and Optic Sensor(s) via proprietary RS-485 Protocol

- May communicate with up to (39) Hood Controllers, (10) Touchpads, (10) Aux Touchpads, (10) Aux Power Supplies, and (10) Aux Light Controllers. Some limitations apply.

Communicates to Variable Frequency Drives via Modbus Protocol

- Refer to VFD submittal sheet for more information
- Supports up to 64 VFDs

Programmable I/O: (3) Digital Inputs, (4) Digital Outputs, (1) Analog Output, (1) Analog Input

Adjustable Temperature vs. Fan Speed Curve

Automatic On/Off based on Hood Temperature or Clock Schedule

Versatile programming parameters for setting up exhaust and supply airflow control

Removable Memory stores setup files and operational history data

BACnet over TCP/IP Interface

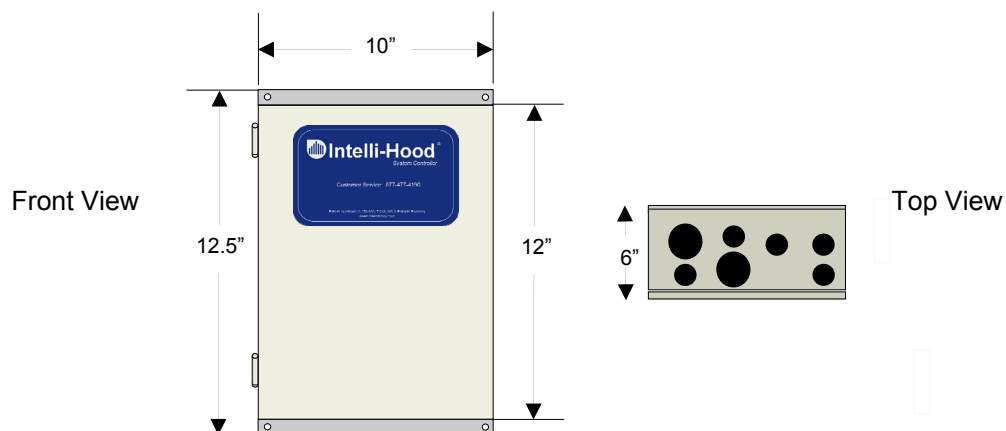
Internet-based Service Application for programming and monitoring

Automatic notification of faults/alarms via BACnet and email

System Controller

Electrical Specifications

Input Voltage :	120 VAC to 220 VAC
Frequency :	50 Hz to 60 Hz +/- 3%
Power Consumption :	170 W
Ambient Temperature :	5 to 40°C, 32 to 120°F
Line Voltage Output Power Capacity:	15A General Purpose Load, Fused 6A Tungsten Load
Low Voltage plenum-rated, shielded cables to VFD(s), Optic Sensors, APU(s) and Temperature Sensors	



Hood Controller

Functional Description

The Hood Controller oversees Temperature and Optic Sensors on each kitchen hood and sends the sensor data to the System Controller via RS-485 communication.

Mechanical Specifications

Galvanized Steel Enclosure, 7"x7", 2.1" tall

Temperature Rating: 0 to 49°C, 32 to 120°F

Steel Beam Clamps for installation on hoods or other mechanical structures above hood.

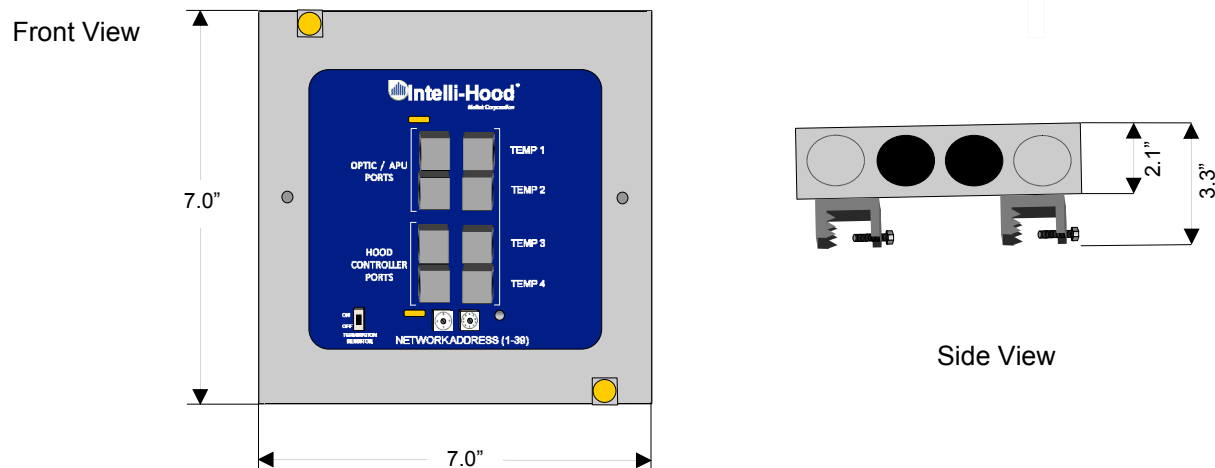
(4) 3/4" conduit holes for connections of Hood Network cables

(4) 3/4" conduit knockouts for connections of Hood Network cables

Electrical Specifications

Low Voltage: 24VDC from the Hood Network, via Hood Network Cables

Power Consumption: A fully loaded Hood Controller with four temperature sensors, two air purge units, and one set of optic sensors consumes approximately 15W.



Functional Description

The Touchpad is the human interface point of the system. FANS and LIGHTS switches provide interface points of kitchen staff to control the hoods. A full-color screen displays the status of the fans and sensors. Setup switches provide a means of programming the system.

A System Controller may have up to ten (10) Touchpads connected to it. Programmable parameters allow the Setup Technician to dictate Touchpad and Hood relationships. Every System Controller is required to have at least one (1) Touchpad device connected to it to allow for human interface to diagnostics and programming parameters.

General Specifications

Full Color Screen: 2.5" diagonal, QVGA resolution, displays operating status and programming menus

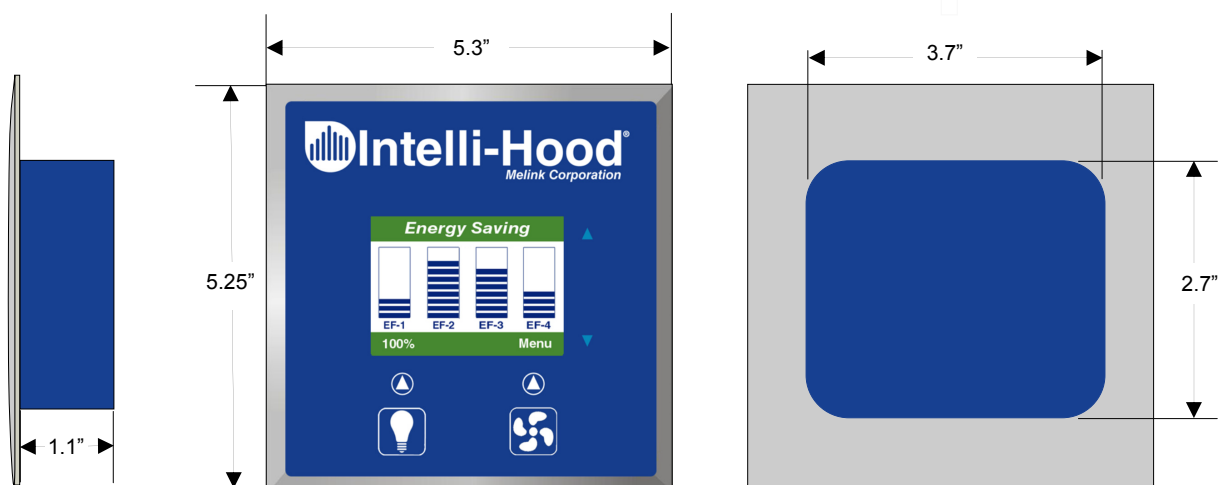
Switches: FANS: Changes system from Energy Saving Mode (fans running) to Standby Mode (fans off)
 LIGHTS: Changes state of line voltage relays which may be used to control Hood Lights circuits.
 Soft Keys: Allow user to boost fan speeds to full speed, access programming menus, access diagnostic and help screens

Stainless steel cover plate (304L) for durable construction and smooth finish

Synthetic membrane keypad for water protection

Temperature Rating: 5 to 40°C, 41 to 104°F

Low voltage: 24VDC from the Hood Network, via Hood Network Cable



Functional Description

A three-wire platinum resistive temperature device (RTD) sensor encased in a stainless steel tube. Threaded housing is designed to be assembled into UL-listed “Quick-Seal” exhaust duct fittings. Temperature Sensors are wired to the Hood Controllers via Hood Network Cables.

Standard sensors are installed in exhaust ducts, while Canopy sensors are installed in the hood canopy to provide enhanced automatic on/off functionality.

General Specifications

Stainless Steel Probe: 0.25” outside diameter, 2 lengths available (Standard and Canopy)

Three-Wire Configuration

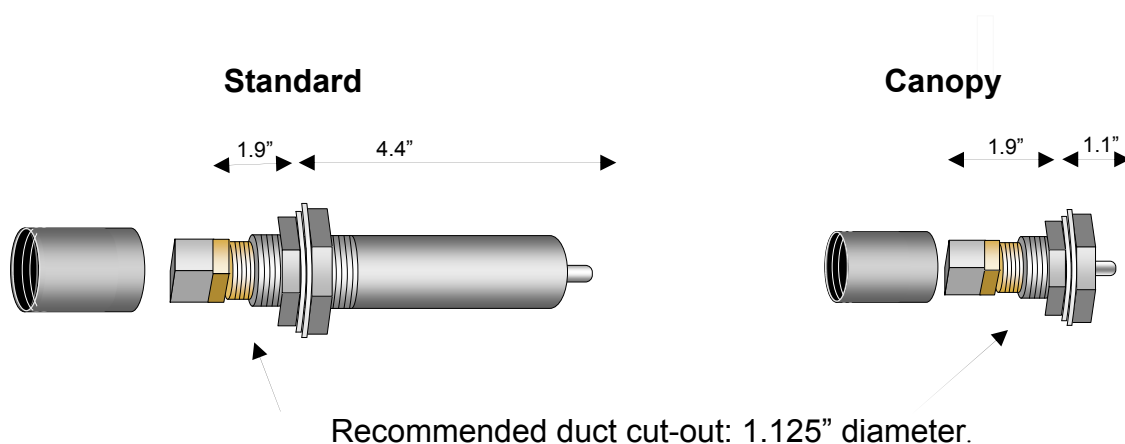
Brass Body, 1/2” external pipe thread

8 pin, RJ-45 connector

Temperature Rating: 0 to 535°C, 32 to 1000°F

RTD Rating: 100 Ohms with 0.385 platinum coefficient

Electrical Connection: Hood Network Cable



Optic Sensors

Functional Description

The Optic Sensors consist of an Emitter and a Receiver which are installed on opposite ends of the kitchen hood. An infrared beam spans the length of the hood to detect any smoke or other vapors generated by the cooking appliances. Upon detection, a signal is sent to the System Controller which automatically ramps the associated fan(s) to 100% speed until the effluent is evacuated. Optic Sensors are wired to the Hood Controllers via Hood Network Cables.

General Specifications

Stainless Steel Housing for durable construction and smooth finish

Optic Span: 3 to 40 feet (automatic gain adjustment for distance)

Auto-calibration: Every day at start-up or 24 hours

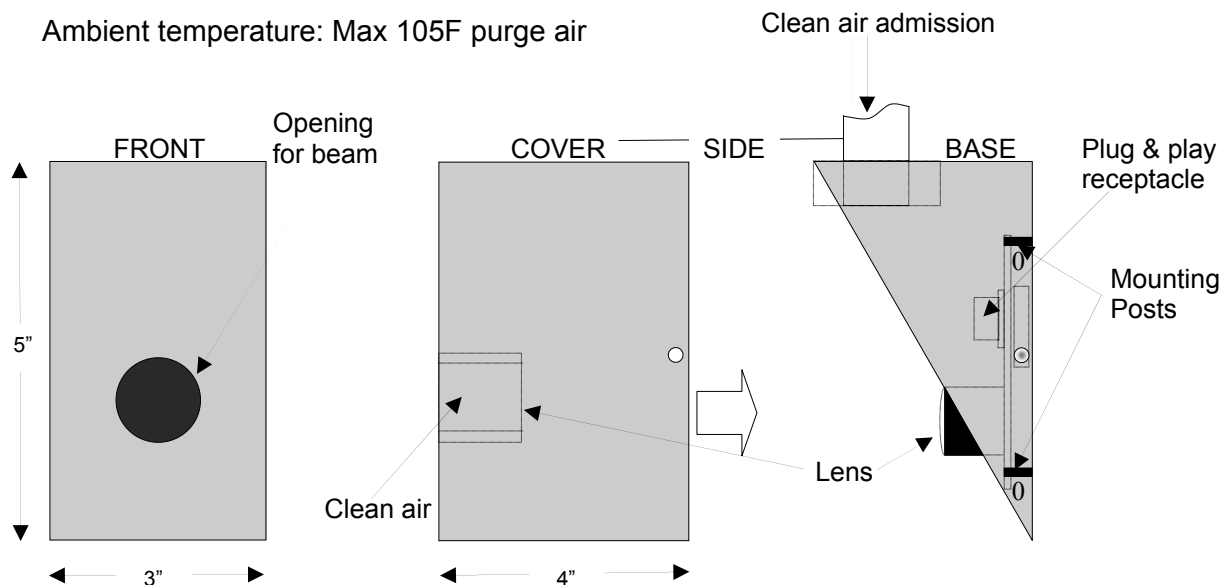
Conformal-coated circuit boards and water-tight cable connectors at sensor PCB connections

Temperature Rating: 0 to 85°C, 32 to 185°F

Response Time: 0.2 seconds

Low Voltage: 12VDC from the Hood Controller, via Hood Network Cable

Ambient temperature: Max 105F purge air



Air Purge Unit

Functional Description

The Air Purge Unit (APU) consists of a miniature blower in a steel box, mounted on each end of the hood above the optic sensors. The purpose of the APU is to pressurize the optic sensors housings with clean air to prevent grease vapors from fouling the lens. The blowing air also cools the optic circuit boards.

The stainless steel conduit pipe that connects the APU and Optic Sensor provides a path for the air flow and optic sensor control cable.

General Specifications

Enclosure constructed of 18 gauge galvanized steel

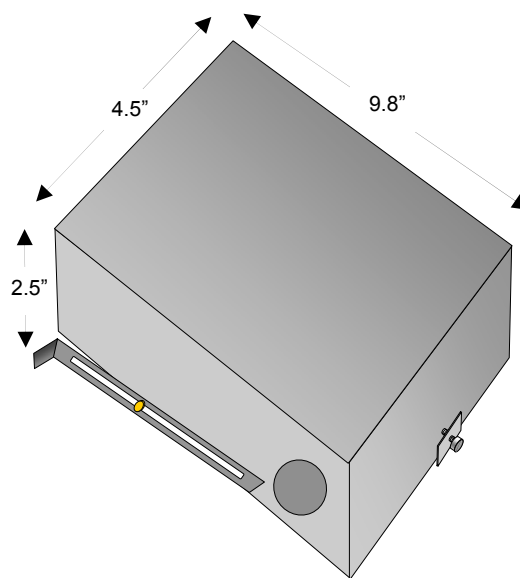
Adjustable support leg

Blower fan bearings permanently lubricated

Temperature Rating: 0 to 51°C, 0 to 125°F

Low Voltage: 12 VDC from the Hood Controller, via Hood Network Cable

Power Consumption: Approximately 7W



Variable Frequency Drive

Functional Description

The electronic motor starter is a variable frequency drive (VFD) which is used to control the exhaust and supply fan motors. The VFD modulates the speed of the fan motors by varying the output voltage and frequency based on a serial RS-485 signal received from the System Controller. The VFD also sends a feedback signal to the System Controller in order for the Touchpad to display the actual speed of the motor.

Mechanical Specifications

NEMA 1 Enclosure.

Soft-start capability.

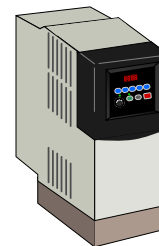
Digital keypad displays output frequency, current, voltage, and allows programming for field modifications.

Protective Functions: motor overload, overheating, overcurrent, overvoltage, output shorts, etc.

High and low frequency limiters.

Adjustable torque boost.

Daisy-chained via Hood Network Cables



Electrical Specifications

Input Voltage : 200-240 V/1 ϕ AC, 200-230 V/3 ϕ AC, 380-480 V/3 ϕ AC, or 460-600 V/3 ϕ AC

Input Frequency : 50 Hz to 60 Hz +/- 3%

Output Voltage : 80-240 V/ 3 ϕ AC or 160-480 V/ 3 ϕ AC

Ambient Temperature : -10 to 50°C, 14 to 122°F

Humidity : 20%-95% relative humidity (non-condensing)

Hood Network Cables

Functional Description

Custom 8-conductor cables connect the various components of the system. The cable is shielded, plenum rated, UL Type CMP OR CL3P FT-6. Per NFPA 70, the cable is allowed to be run in horizontal plenums and vertical chases without conduit when carrying current-limited low-voltage power and signals as it does with the system.

Construction Specifications

UL TYPE OR STYLE:	CMP OR CL3P FT-6
PRIMARY INSULATION TYPE:	SGPVC
JACKET THICKNESS:	.015"
JACKET COLOR:	SPECIAL BLUE
JACKET MATERIAL:	CMP
NOMINAL O.D.:	0.190"
TEMP. RATING:	60C
CONDUCTOR/PAIR COUNT:	4 PAIRS
INSULATION THICKNESS:	0.007"
GAUGE & STRANDING:	24 AWG, 7/32 BC
VOLTAGE RATING:	300V
SHIELD:	FFE ALUMINUM POLYESTER
DRAIN WIRE:	24 AWG, 7/32 TC

Stock Pre-Terminated Lengths

2CB3-001: 1' (0.3m)	2CB3-050: 50' (15.2m)
2CB3-005: 5' (1.5m)	2CB3-075: 75' (22.8m)
2CB3-015: 15 (4.5m)	2CB3-100: 100' (30.5m)
2CB3-030: 30' (9.1m)	2CB3-200: 200' (61m)

Aux Touchpad

Functional Description

The Aux Touchpad is an additional human interface point of the system. FANS, LIGHTS, and 100% switches provide interface points of kitchen staff to control the hoods. Indicator LEDs provide status for the FANS, LIGHTS, 100%, and Faults.

A System Controller may have up to ten (10) Aux Touchpads connected to it. Programmable parameters allow the Setup Technician to dictate Aux Touchpad and Hood relationships.

General Specifications

FANS Switch: Changes associated Hoods between Active Mode (fans running) to Standby Mode (fans off)

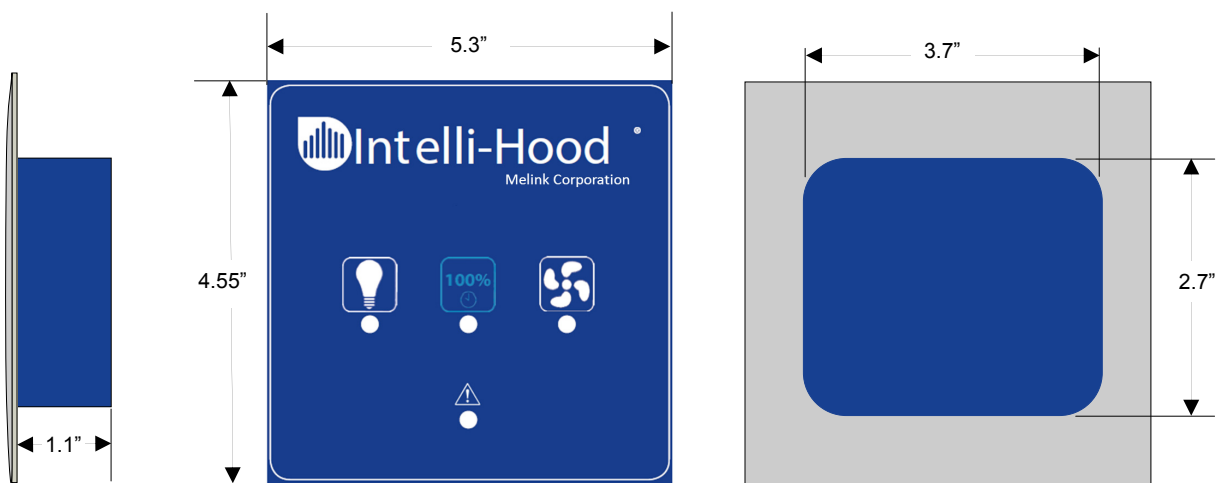
LIGHTS Switch: Changes state of associated line voltage relays which may be used to control Hood Lights circuits.

100% Switch: Allows user to temporarily boost fan speeds to full speed on associated Hoods.

Stainless steel cover plate (304L) for durable construction and smooth finish

Synthetic overlay for water protection

Low Voltage: 24VDC from the Hood Network, via Hood Network Cable



Aux Power Supply

Functional Description

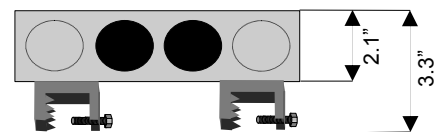
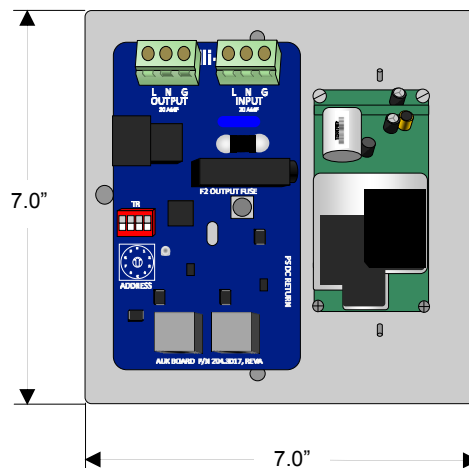
The Aux Power Supply (APS) may be used for large installations additional power is needed to operate Hood Controllers, Optic Sensors, and Touchpads. Since each Hood Network Port is power-limited, depending on the quantity of devices in a series line and the length of cable between devices, Aux Power Supply Device(s) may be needed to provide power to the Hood Network.

A System Controller may have up to 10 Aux Power Supplies connected to it.

Electrical Specifications

Input Voltage :	120 VAC to 220 VAC
Frequency :	50 Hz to 60 Hz +/- 3%
Output Voltage:	24VDC
Frequency :	50 Hz to 60 Hz +/- 3%
Power Consumption :	60W (max)
Ambient Temperature :	5 to 40°C, 41 to 104°F
Hood Network Connection:	24VDC from the Hood Network, via Hood Network Cable

Front View



Side View

Aux Lighting Controller

Functional Description

The Aux Light Controller (ALC) may be used for large installations where there is a need to control multiple light circuits. A System Controller may have up to 10 Aux Light Controllers connected to it. Relationships among the ALC and Touchpads are programmable via field editable parameters.

A System Controller may have up to 10 Aux Lighting Controllers connected to

it. Electrical Specifications

Input Voltage :	120 VAC to 220 VAC
Frequency :	50 Hz to 60 Hz +/- 3%
Power Consumption :	5W (not including lights)
Ambient Temperature :	5 to 40°C, 41 to 104°F
Hood Lights (voltage matches input):	120 VAC to 220 VAC (15A max)
Line Voltage Output Power Capacity:	15A General Purpose Load, Fused 6A Tungsten Load

