January 2022

# Auto Fan Control with Demand Control Ventilation™

Installation, Operation, and Maintenance Instructions


**Description:**

The Larkin Auto Fan Control with Demand Control Ventilation™ will automatically energize the fan(s) prior to cooking operations commencing per IMC code 507.1.1 by means of a temperature sensor and modulate the fan(s) based on cooking load and building pressure.

**System Components:**

The Larkin Industries AFC-DCV (Auto Fan Control with Demand Control Ventilation™) wall mount control box includes the following:

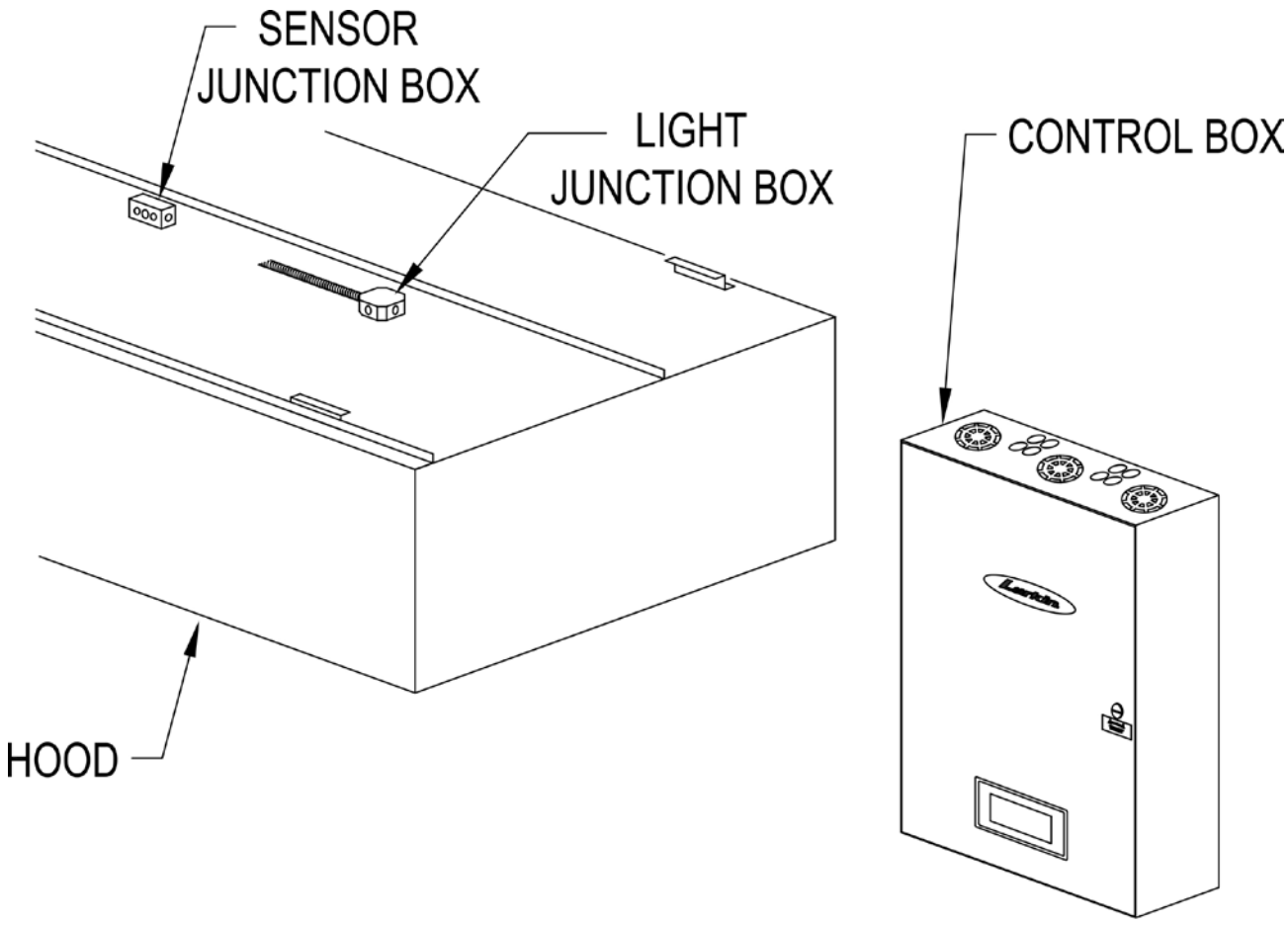
- Wall mounted 18” x 26” x 8” stainless steel enclosure with hinged door and tamper resistant latch.
- Color touch screen display mounted on enclosure door for system operation.
- Exhaust and Make Up Air (MUA) fan(s) are interlocked. If hood fire suppression system is activated, the lights and MUA fan(s) shut down. The Exhaust fan(s) will continue to operate at 100%.
- Temperature sensor(s) factory mounted in hood(s).
- Exhaust and MUA fan VFD(s) (Variable Frequency Drive). *** Fans must be 3 Phase ***
- Prewired with terminal strips and wiring diagrams.

**Note:** Wall mounted box size 18” x 26” x 8” for up to 6 VFD’s.

# Mounting

- The AFC-DCV Control Box will be housed in an 18” x 26” x 8” stainless steel enclosure and should be secured to a fixed wall near the exhaust hood(s) it controls (Fig. 1). **NOTICE: The VFD’s produce heat and must have proper ventilation. <u>THE AFC-DCV ENCLOSURE CAN NOT BE RECESS MOUNTED</u>.**

Fig. 1



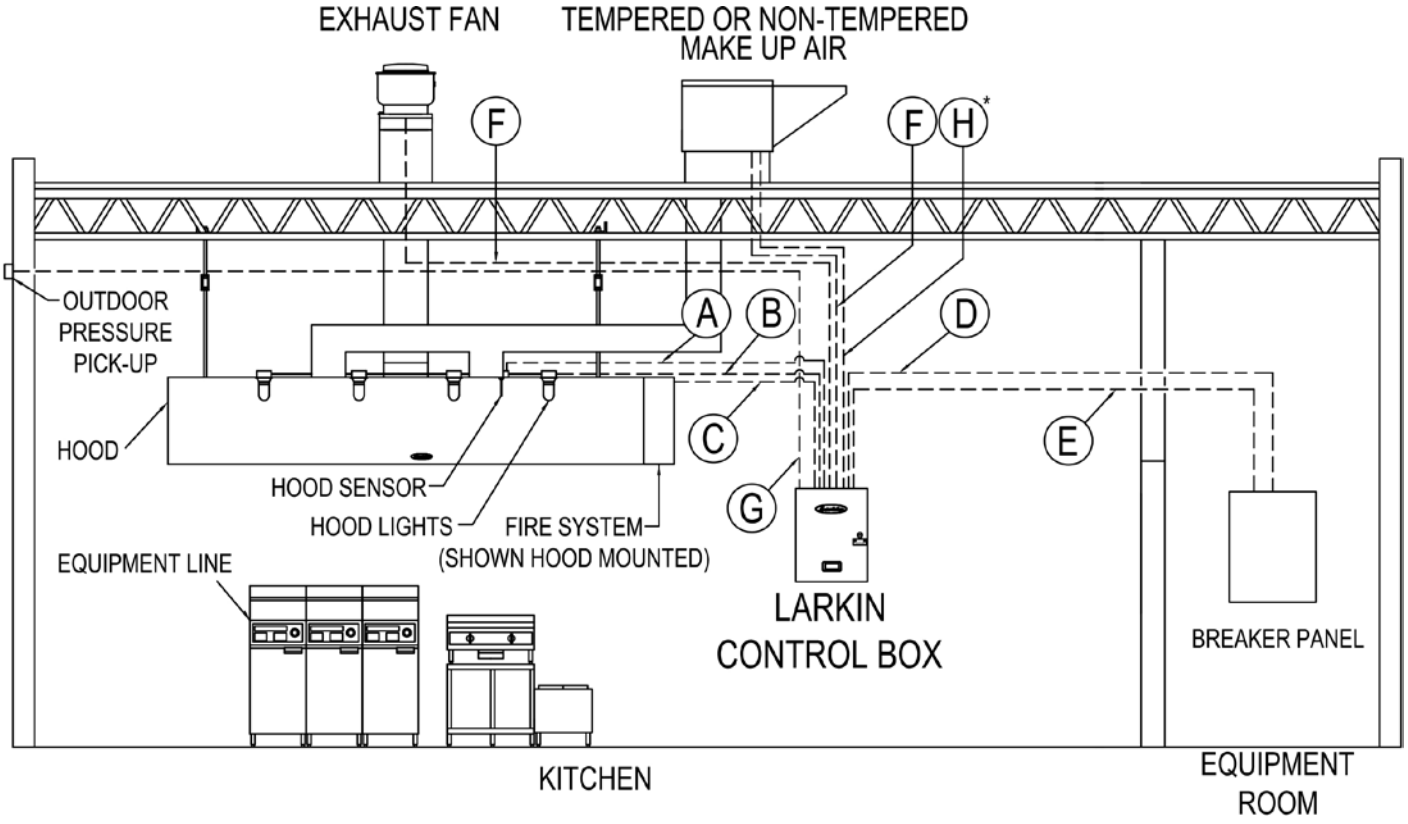



**Figure 3**

## Connections Required for System

Larkin S/S 18” x 26” x 8” AFC-DCV Control Box with hinged door and color touch screen display:

A - Low Voltage wiring to hood sensor(s)

B - Wiring to lights in hood(s)

C - Fire suppression micro switch wiring

D - Two separate circuits wired from breaker panel:
(1)120VAC 15AMP for control voltage
(1)120VAC 15AMP for hood light(s)

E - 3 Phase power as required wired from breaker panel to Control Box for fan(s) (See wiring diagram)

F - 3 Phase wired from Control Box to fan(s) (See wiring diagram)

G - ¼” tubing from pressure sensor in control box to outdoor pick-up. **Note:** If unable to install tubing to pressure sensor/pick-up contact technical support at 800-322-4036.

***Note:** If Tempered MUA is provided, the tempering lock-out connection must be made from the Control Box to the tempered unit on terminals R and W1. This prevents tempering when below 50% volume to ensure proper operation of Tempered MUA units.

H - *Temperature lock-out connection (if tempered make up air is provided) from Control Box to MUA unit.*

## Hood Mounted Temperature Sensor

When the Larkin AFC-DCV is ordered with a Larkin Industries hood model, the temperature sensor will be factory mounted in each hood, so no field installation is required. Any AFC-DCV ordered for a non-Larkin hood(s), or Retro-fit application, the temperature sensor(s) will have to be field installed in each hood controlled by the system. A 3/4”- 7/8” diameter hole must be cut in the top of the hood(s), and the compression seal(s) with sensor(s) installed as shown in (Figure 4).

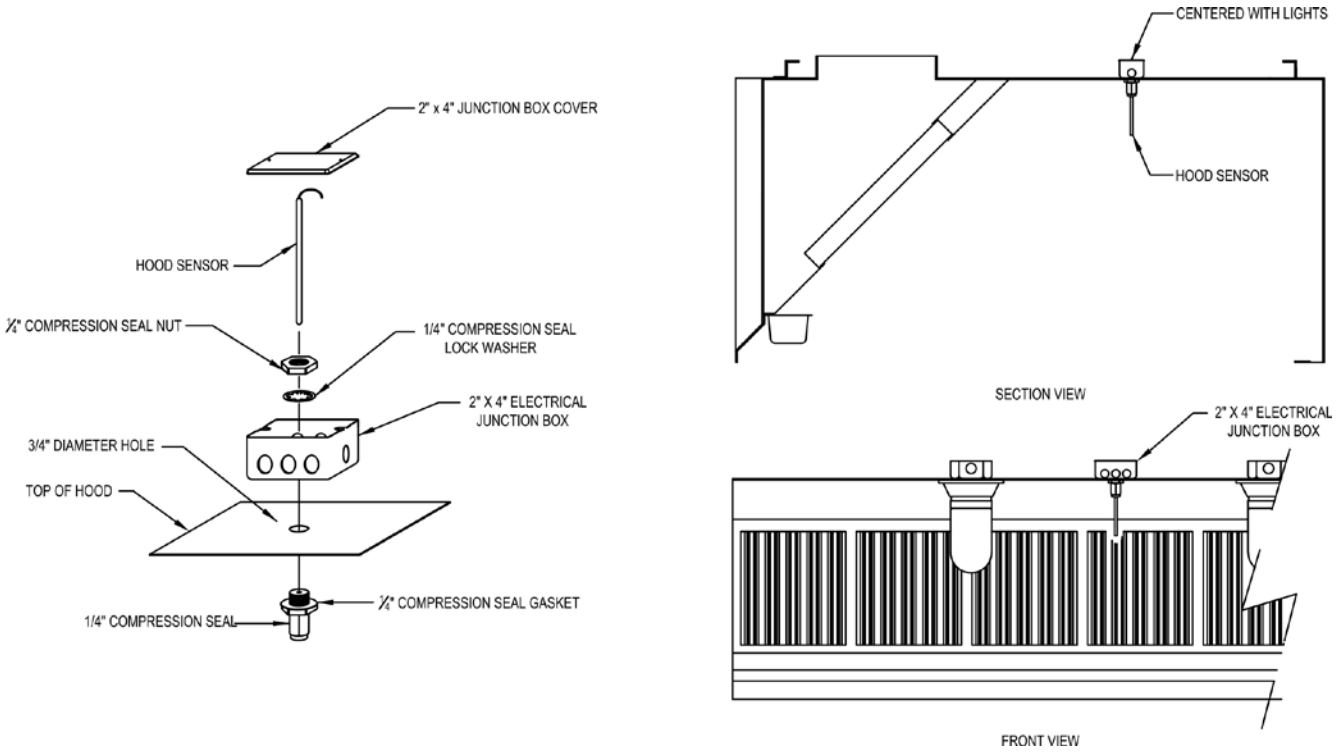



**Figure 4**

**Note:** Mount sensor(s) in top of the hood(s) centered front to rear and as close to the center of the hood left to right as possible. Mounting sensor between a light and the end of the hood may be required on shorter hoods. **CAUTION:** If sensor is located too close to a light fixture, the heat generated could activate the system. The sensor(s) should be centered between lights.

## Wiring Instructions

The Larkin AFC-DCV components are all prewired. The field wiring required to connect the Control Box to the hood(s) and breaker panel should be made in accordance with the wiring diagram provided with these instructions and the NEC (National Electrical Code) requirements.

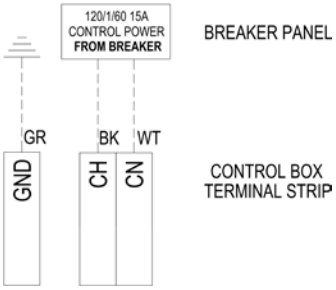
**<u>CAUTION!</u> More than one disconnect switch may be required to de-energize the equipment before servicing. Ensure all power sources have been disconnected before installing or servicing the system. High voltage electrical input is needed for this system. Only a qualified licensed electrician should perform this installation.**

## ⚠ Important Wiring Information to Prevent Damage to Equipment ⚠

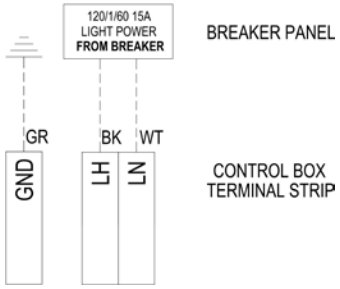
1. Check the power source to see if it is compatible with the requirements of the provided system. The AFC-DCV wiring diagram lists the proper phase, voltage, and amp load.
2. Verify input power voltage before connecting to Variable Frequency Drive(s) (VFD).
3. Check rotation of fan(s). Exhaust fans will move some air in reverse (see rotation arrow on fan). To correct rotation of fan(s), any two output leads from the 3 Ph VFD (U, V or W) to the fan may be reversed, or rotation may be changed in parameter 400.13 (see Setting VFD Parameter Instructions Pg. 12).
4. When wiring to a Tempered MUA unit, a tempering lock-out connection must be connected to the Tempered MUA unit from the control box, or the unit may not operate properly. (see Tempered MUA Unit wiring diagram connections from R and W1 Pg. 8)

# Field Wiring Requirements for Control Panel

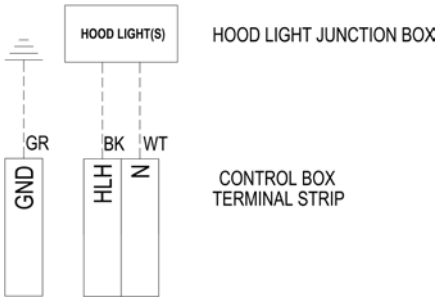
**Control Circuit:** Field wire 120 VAC 1 Phase 15 AMP circuit to the Control Panel terminals Control Hot (CH), Control Neutral (CN), and Ground (GND) from breaker panel. **Control circuit should not be wired to a shunt trip breaker**.



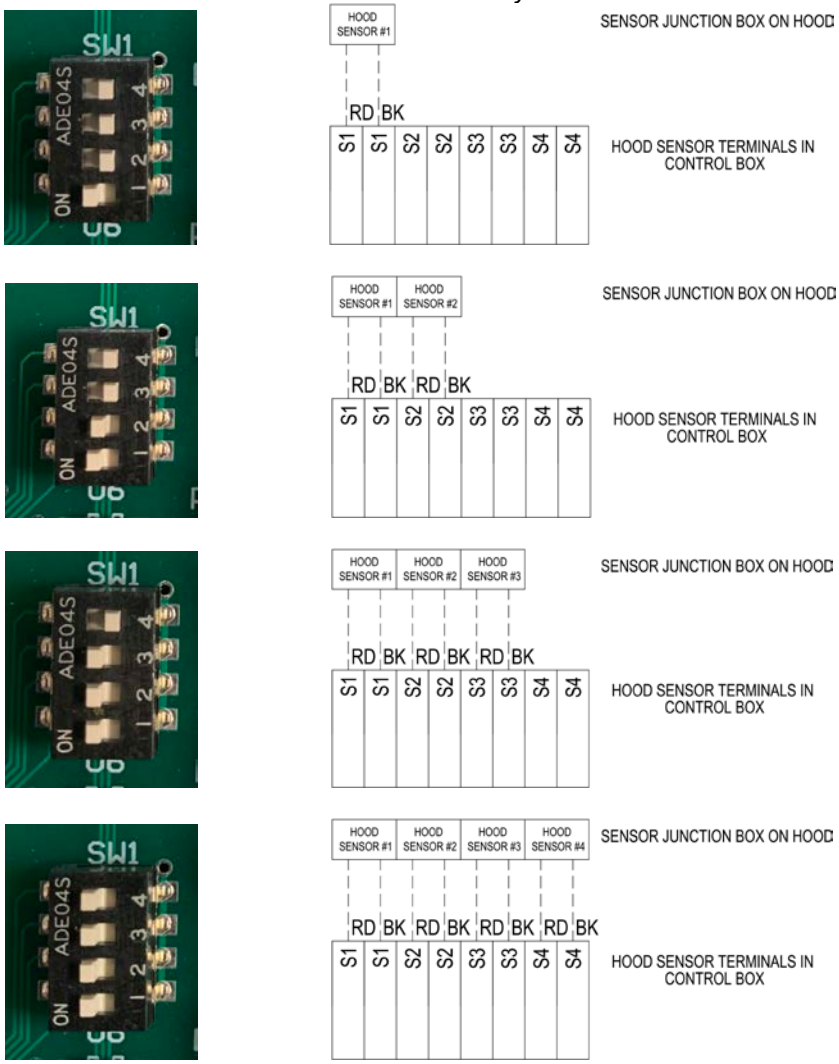

**Light Circuit:** Field wire 120 VAC 1Phase 15 AMP circuit to the Control Box terminals – Light Hot (LH), Light Neutral (LN), and Ground (GND) from breaker panel.



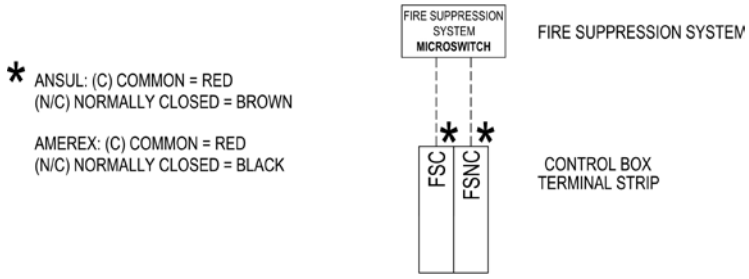

**Hood Lights:** Field wire hood light(s) from the hood light junction box to the Control Box terminals Hood Light Hot (HLH), Neutral (N), and Ground (GND).



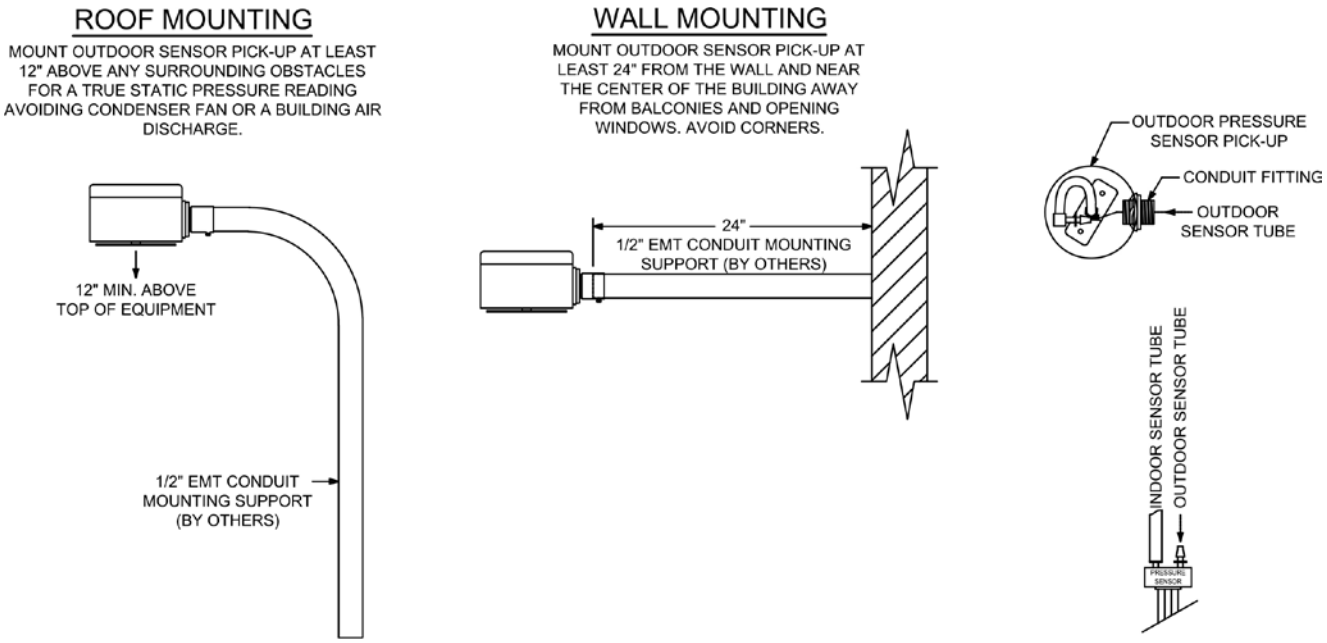
**Hood Sensor(s):** Field-wire low voltage wiring from the hood sensor to the sensor terminals S1 located in the Control Box (22 AWG Min.). For a system controlling more than one hood, connect the second hood sensor to terminals S2, the third sensor to terminals S3, and the fourth sensor to terminals S4. **Sensors must be wired separately**. **The corresponding "Sensor Dip Switch" must be in the ON position for every sensor that is connected to the terminal strip**. If a dip switch is in the on position and that sensor is not connected, the system will be in error and will not operate. If a sensor is connected to the terminal strip and the dip switch for that sensor is in the off position, the auto activation and DCV functions of the system will not be active for that sensor.



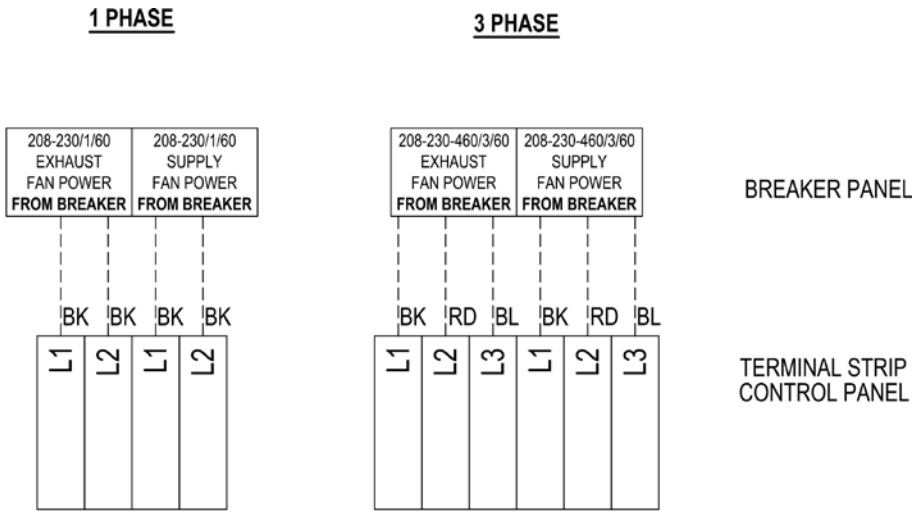

**Micro Switch:** The Larkin AFC-DCV requires a Fire Suppression System Micro-Switch connection. The Micro-Switch should be field wired from the Fire Suppression System to the Control Box connecting the Common (C) lead from the Micro-switch to the Fire Switch Common (FSC) terminal in the Control Box. Connect the Normally Closed (NC) lead from the Micro-switch to the Fire Switch Normally Closed (FSNC) terminal in the Control Box. Isolate the Normally Open (NO) lead from the Micro-switch. **WARNING: <u>DO NOT</u> APPLY VOLTAGE THROUGH MICRO-SWITCH. THIS <u>WILL</u> CAUSE DAMAGE TO THE CONTROL BOARD.** (See Micro-Switch mounting options on page 15)



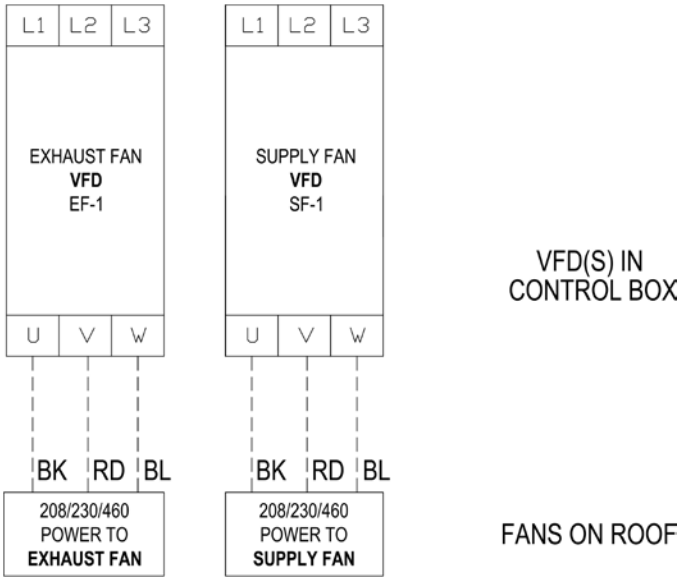
**Outdoor Pressure Sensor:** Mount the Outdoor Pressure Sensor Pick-Up on an outside wall closest to the Control Box (roof mounting is also acceptable). Outdoor Pick-Up must be installed with the removable cover facing up with the metal plate parallel to the earth's surface. Connect the ¼" tubing (provided) to the Outdoor Pick-Up as direct as possible to the Control Box. Larkin recommends the tubing be enclosed in conduit from the Control Box to above finished ceiling. Conduit should also be used when penetrating walls or roof. Insert the tubing through the hole in the knockout located in the top of the Control Box. Connect tubing to the "Outdoor" connection (the open port) on the pressure sensor. The "Indoor" connection should already have tubing connected to the Indoor Pick-Up in the top of the Control Box. **Note: This is required for differential building pressure control. If unable to install tubing from the Outdoor Pick-Up to the Pressure Sensor in the Control Box, contact technical support at 800-322-4036.**




**Fan Input Power From Breaker Panel:** Check the power source to see if it is compatible with the requirements of the provided system. The AFC-DCV wiring diagram lists the proper Phase, Voltage, and Amp load. Verify input power voltage before connecting to Control Box terminals supplying VFD(s). Field wire proper Phase and Voltage from the breaker panel to the correct terminals in the Control Box for each fan being controlled.

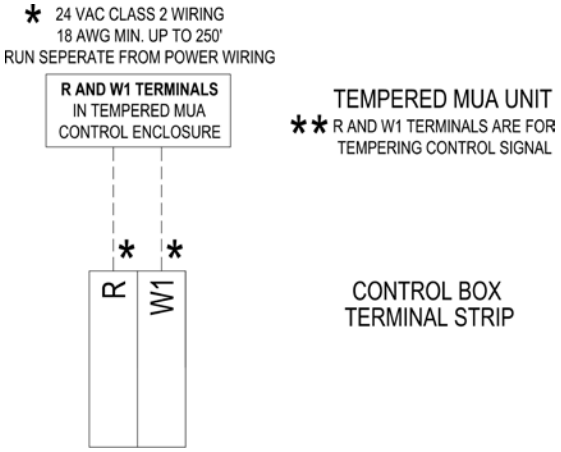


**Fan Output Power From VFD(s):** Field wire output power to proper fan from the correct VFD(s) terminals U, V, and W. **Notice: Regardless of input power VFD(s) will only output 3 PH power.** Check rotation of fan(s). **Note:** Exhaust fan(s) will move some air in reverse (See rotation arrow on fan). Changing rotation may be accomplished in two different ways; (1) Change any 2 leads connected to the VFD output U, V, and W or (2) Change rotation in parameter 400.13 in the VFD (See Setting VFD Parameter Instructions Pg. 12).

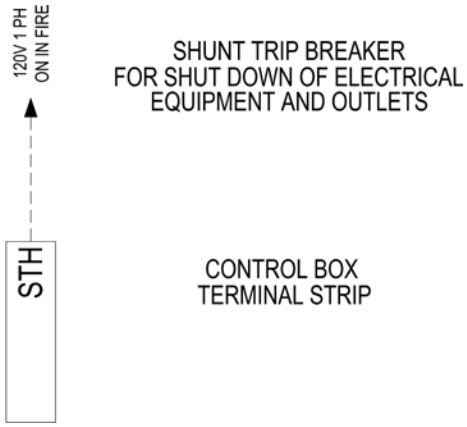



**Tempered MUA Connections:**
When wiring a Tempered MUA unit the tempering lock-out connection must be made from the Control Box to the Tempered MUA unit. If this connection is not made the unit may not operate properly. Tempered MUA units may not operate properly below a 50% volume. This connection allows the Control Box to lock out the heat/cool function of the unit when the turn-down is below 50%. When a Larkin Industries Tempered MUA unit is provided, use low voltage wiring from terminal R and W1 in the Control Box to terminals R and W1 in the Tempered MUA control panel. Other manufacturers Tempered MUA units have connections for this purpose that may have different markings. See MUA wiring diagram or IOM for proper connection points. **DO NOT run low voltage wiring in same conduit as input power circuits (high voltage).**

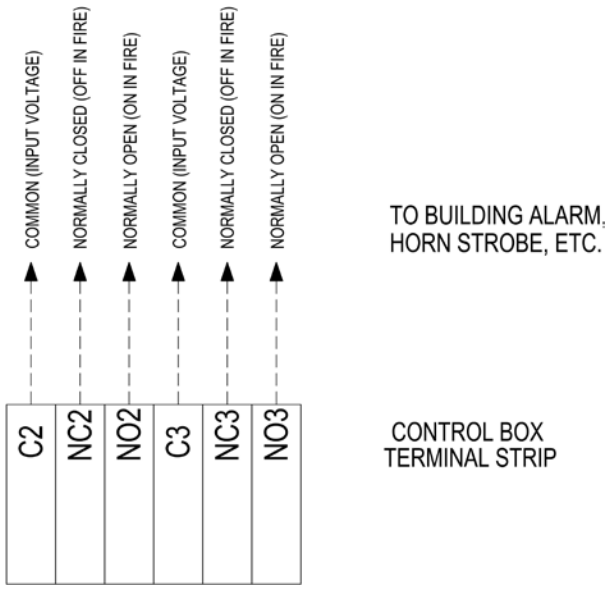
**NOTICE: Remove jumper from terminals R and W1 in the Tempered MUA unit when making this connection.**



**Shunt Trip Breaker Connection:** Field install wiring from the Control Box terminal Shunt Trip Hot (STH) to the trip terminals on the shunt trip breaker (a neutral may be supplied from breaker panel). This will provide 120V 1 PH power to trip the breaker in Fire Mode. **WARNING: <u>DO NOT</u> APPLY VOLTAGE TO TERMINAL STH. THIS <u>WILL</u> CAUSE DAMAGE TO THE FIRE RELAY.**




**Spare Dry Contact Connections:** Two spare dry contacts with normally open and normally closed connections, C2, NC2, NO2 and C3, NC3, NO3. Contacts are provided for activation of building alarm, horn strobe, etc. Up to 120V 15A power may be connected to C2 and/or C3 for activation or de-activation of auxiliary controls in Fire Mode. The NC2 and NO2 terminals will have whatever voltage has been connected to C2. The NC3 and NO3 terminals will have whatever voltage has been connected to C3. In Fire Mode, NC2 and NC3 contacts will open and no longer have the connected power through these terminals for “Off in Fire”. At the same time, NO2 and NO3 will close in Fire Mode supplying the connected voltage to those terminals for “On in Fire”.



# Installation Check List

Is Control Box mounted next to the exhaust hood(s) it controls (See Pg. 2)?

Are two separate circuits (120VAC 15AMP control and 120VAC 15AMP hood lights) connected from breaker panel to control box per NEC (See Pg. 5)?

Are hood lights connected from the Control Box to the hood light junction box per NEC (See Pg. 5)?

Are hood sensor(s) connected from hood(s) to Control Box (One sensor per hood or hood section)? Check dip switch position (See page 6).

Is there a Micro-Switch wired to the control box from the fire system (See Pg. 6)? **Warning: Do not apply voltage through Micro-Switch. This WILL cause damage to the control board.**

Is input power of proper Phase and Voltage from the breaker panel connected to each VFD terminals L1, L2, and L3 per NEC in the Control Box (See Pg. 7)?

Is the ¼" tubing (provided) connected to the Outdoor Pick-Up, routed through conduit (as identified on Pg. 7) to the Control Box and connected to the "Outdoor" connection (the open port) on the pressure sensor in the Control Box (See Pg. 7)? Is Outdoor Pick-Up installed upright (removable cover facing up)? **Note: This is required for differential building pressure control. If unable to install tubing from the Outdoor Pick-Up to the Pressure Sensor in the Control Box, contact technical support at 800-322-4036.**

Is output power from VFD(s) terminals U, V, and W in the Control Box connected to the proper fan(s) on the roof (Exhaust to Exhaust, Supply to Supply) per NEC (See Pg. 8)? **Notice: Regardless of input power VFD(s) will only output 3 PH power.**

**Optional Equipment:**

If a shunt trip breaker is required, connect the shunt trip control voltage from the Control Box terminal Shunt Trip Hot (STH) to the trip terminals on the shunt trip breaker (a neutral may be supplied from breaker panel). This will provide 120V 1 PH power to trip the breaker in Fire Mode (See Pg. 9).

If a Tempered MUA unit is used, connections from the control box to the Tempered MUA unit must be made to terminals R and W1 for control of tempering lock-out. Jumper from terminal R and W1 must be removed when making this connection (See Pg. 8).

If Wiring for building fire alarm, strobe horn, etc. is required field wire to the proper Common, Normally Closed or Normally Open terminals in the control box. Up to 120V 15A power may be connected to C2 and/or C3 for activation or de-activation of auxiliary controls in Fire Mode. The NC2 and NO2 terminals will have whatever voltage has been connected to C2. The NC3 and NO3 terminals will have whatever voltage has been connected C3. In Fire Mode, NC2 and NC3 contacts will open and no longer have the connected power through these terminals for "Off in Fire". At the same time, NO2 and NO3 will close in Fire Mode supplying the connected voltage to those terminals for "On in Fire" (See Pg. 9).

**For technical support contact Larkin Industries, Inc. 1-800-322-4036**

# System Startup

Turn on all breakers that power the fan VFD(s), Control Box power, hood lights. The color touch screen display should power on. If display needs calibration, simply touch the dots on the screen. Check for proper voltage at all terminals with fan control off. Each VFD should have a blue blinking "Ready" light with "STOP" displayed on the keypad. Keypad should be moved from one VFD to another to ensure all VFDs are in "Stop" mode. Cooking equipment should be off, fan(s) should not be operating and "System Off" should be on the display.

If the fan(s) and light(s) come on and “Auto Run Mode” is displayed, the temperature sensor in the hood has detected a temperature rise. If only the Exhaust fan(s) come on immediately and “FIRE” mode is displayed, check for proper connection of Fire System Micro-Switch (See Pg. 6) or check that the Fire Suppression system is not in the discharged position.

With the fan button off, depress the light button to energize the hood lights. The light button should illuminate to show that the lights are on. If the hood light(s) are not working:

**1)** Verify that the bulbs are installed.
**2)** Verify that all connections to hood(s) have been made and breakers are on.
If the light(s) are working properly, de-energize the lights by depressing the light button again.

Turn on the fan(s) by depressing the fan button on the display. The fan and light buttons should illuminate (hood lights are interlocked with fan switch). This indicates the fan(s) and light(s) should be operating. “Manual Run Mode” should be on the display. If fan(s) are not operating, check all connections to and from the Control Box. VFD(s) should start and ramp up to a minimum speed of 18 Hz (the provided keypad should be moved from one VFD to another to check proper start-up). The touch screen display should show a 30% output for Exhaust Fan(s), building pressure should be green and display ± .01” WC. If an exterior door is opened, the building pressure display may read ±.00” WC. **Note:** The MUA fan(s) speed is independent of the Exhaust fan(s) speed and is controlled by the differential building pressure. A positive (+) increase in building pressure will reduce the MUA Fan(s) speed to maintain balanced building pressure. A negative (-) increase will increase MUA Fan(s) speed to maintain balanced building pressure. Hood sensor temperature on the display should be approximately the same as the room temperature.

Check the rotation of the fan(s). **Note:** The exhaust fan(s) will exhaust some air while rotating in reverse. Checking rotation may be accomplished in two different ways, (1) you may check the direction arrow on the fan(s) or (2) depress the “100% Override” button on the display and monitor the motor amperage displayed in parameter 104 on each fan(s) controlling VFD using the VFD keypad (see Setting VFD Parameters Instructions Pg. 12). A fan turning in reverse rotation will exceed the rated FLA of the motor. If the amperage displayed in parameter P104 on the VFD is higher than the listed FLA for the fan, it is spinning in reverse rotation. To reverse rotation, change any 2 leads connected to the VFD output U, V, and W or the rotation may be changed in parameter 400.13 in the VFD using the keypad (see Setting VFD Parameters Instructions Pg. 12).

**CAUTION! More than one disconnect switch may be required to de-energize the equipment before servicing. Ensure all power sources have been disconnected before installing or servicing the system. VFD(s) can be holding stored energy when main supply has been switched off. DO NOT touch power connections immediately. Check power terminals for isolation from supply.**

See Fan IO&M for further instructions on fan start-up procedures.

After correct rotation has been verified for all fans, if needed, depress the 100% override button again to manually run Exhaust fan(s) at 100%. Exhaust fan(s) should be displaying 100% and Pressure display should be a steady green. The MUA fan(s) speed is independent of the Exhaust fan(s) speed and is controlled by the building pressure. If both Exhaust and MUA fan(s) are running at 100%, but the pressure is not displaying green and showing a negative (-) pressure, the maximum Exhaust fan speed may need to be adjusted (See Setting VFD Parameter Instructions Adjusting Max Speed Pg. 12).

**Setting VFD Parameters**

**VFD Keypad:** The keypad is an easy means for diagnostics of the VFD(s). The keypad is simply connected to the diagnostic interface on the front of the VFD(s). The AFC-DCV is supplied with one keypad and is interchangeable between VFD's during operation for diagnostics. **Note:** The VFD(s) are pre-programmed per your job specifications prior to leaving the factory and should not require additional programming. If changes are necessary or errors are displayed, please contact technical support @ 800-322-4036.


Enter/Save Scroll Up Scroll Down Return

Depress "Enter" once to enter Parameter Group. Depress "Enter" again for parameters within the group.

Depress "Scroll Up" or "Scroll Down" to desired parameter. If .XX is displayed after a parameter, depress "Enter" again and then depress "Scroll Up" or "Scroll Down" to reach desired parameter.
Depress "Enter" and the parameter setting will be displayed.

To change parameter, "Scroll Up" or "Scroll Down" to desired setting.

Depress "Enter" and hold for 3 seconds until "Save" is no longer flashing to save parameter to the desired setting.

Depress "Return" to exit back to Run/Stop screen.

**Monitor Amps:** Connect the keypad to the VFD controlling the fan to be monitored. Using the above instructions, navigate to parameter P104. This will display the actual amperage of that motor. Depress "Return" to return to the previous menu.

**Adjusting Max Speed:** The max Exhaust speed will need to be adjusted if the MUA cannot maintain correct pressure. Connect the keypad to the VFD controlling the fan to be adjusted. Using the above instructions, navigate to parameter P430.03. This will display 60HZ. If the fan speed needs to be adjusted, depress the "Scroll Down" button to lower the max HTZ of the fan. Depress "Enter" button and hold until "Save" is no longer flashing. Depress "Return" to return to main screen. When adjusting "Max. Speed", avoid large adjustments. Lower the HZ by increments of 1HZ at a time. Allow several seconds between adjustments for the pressure to stabilize. Recheck to verify that the fan is running at the highest Hz possible and the Pressure Display is maintaining a steady green on the color display. If MUA is not running at 100%, the Exhaust Hz should be increased slightly using the same adjustment procedures as mentioned before. This will ensure that the system is exhausting the absolute maximum possible.

**Motor Power Changes:** Connect the keypad to the VFD controlling the fan to be monitored. Using the above instructions, navigate to parameter P208.01. This will display the incoming line voltage that the VFD has been programmed for. If the setting for the fan input power needs to be changed, depress the "Scroll Up" or "Scroll Down" button to change line voltage. A 208-230 selection will be displayed as 230. Depress "Enter" button and hold until "Save" is no longer flashing. Depress "Return" to return to main screen.

**Motor HP Changes:** Connect the keypad to the VFD you wish to re-program. Using the above instructions, navigate to parameter P320.06. This will display the HP in Kw that the VFD has been set to for that fan motor. If the fan HP needs to be changed, depress the "Scroll Up" or "Scroll Down" button to change the setting to the correct Kw for the HP desired **(See HP to Kw conversion chart Pg. 15)**. Depress "Enter" button and hold for 3 seconds until "Save" is no longer flashing. Depress "Return" to return to main screen.

The startup is now complete. To test the systems fire suppression interlock, and Auto Fan Control for IMC 507.1.1 compliance follow the Test Procedures in the next section. For operation information and system adjustments see System Operation section.

# Test Procedures

**Testing of the System for IMC 507.1.1 Compliance: Please read complete test procedures prior to attempting function test for Fire Marshal.**

**Note: For timely automatic de-activation, the test should be done in the following order: 1) Auto-Activation, 2) Fire System Activation, 3) Auto-Shut Down. When the test is done in this sequence, the Micro-Switch trip will bypass the 30-minute run timer initiated on start-up and the system will Auto-Shut Down in 3-5 minutes. If not, the system will run for approximately 33 minutes before shutting down automatically.**

1. Cycle all control power to the Control Box and VFD's to reset the system prior to test. Fan(s) and light(s) should be de-energized prior to initiating the test procedures below.

2. Conduct the test by applying heat to any one of the hood sensor(s) located in the center of the hood(s), in between and in line with the light(s) and in front of the grease filters. **Note:** It does not require much heat. The palm of your hand or hot water should be enough. **DO NOT USE A TORCH!** When the hood sensor(s) detect a rise in temperature the fan(s) and light(s) will automatically energize. Both Fan and Light buttons will illuminate on the display indicating that power is going to the fan(s) and light(s). For multiple hood systems, when any hood sensor(s) detects a temperature rise, the fan(s) and light(s) will automatically energize for all hoods connected to that Control Box. **Note: Allow the system to continue operating after the automatic activation to perform fire system test described below.**
3. For this portion of the test, the system should still be operating in automatic mode, described above. The system is designed to shut down the lights and MUA fan(s), continue to run the Exhaust fan(s), and provide 120V for shunt trip breaker(s) in Fire Mode. To conduct this test, simply trip the fire suppression Micro-Switch to simulate Fire Mode. The Exhaust fan(s) should continue to run, the light(s) and MUA fan(s) should shut off, the Auxiliary Contacts should change state and 120V should be provided for shunt trip breaker(s). "FIRE" will be on the display indicating that the system is in Fire Mode. After testing, place the Micro-Switch back to the normal position. The light(s) and MUA fan(s) should re-energize. Shunt trip breaker(s) will need to be reset, if applicable. The system will shut down automatically after the sensor(s) have cooled to the factory pre-set Low End Turn Off temperature of 88° F. (may be accomplished with cool water), and the system detects no additional rise in temperature within 3-5 minutes. This will complete the test procedure.

If the Fan and or Light button has been manually depressed and the system is running in manual mode it must be manually shut down. In normal operation there will be a factory set 30-minute Initial Safety Timer that must elapse before the system will de-energize. For multiple hood systems, the warmest sensor must cool to the factory set point before automatic de-activation will occur.

# System Operation

To comply with the International Mechanical Code 507.1.1 the commercial kitchen exhaust system shall operate during the cooking operation and have automatic controls that will activate the fan(s) no more than 15 minutes after the first appliance under the hood has been turned on.

The AFC-DCV (Auto Fan Control with Demand Control Ventilation) will accomplish this by automatically activating the fan(s) and light(s) anytime a hood sensor detects a rise in temperature.

The Fan and Light buttons will be illuminated indicating power is going to the fan(s) and light(s). The system will start the fan(s) at minimum speed of 30% and will increase up to 100% as the cooking load/temperature increases until the Exhaust fan(s) are at 100%. The MUA fan(s) will adjust output independent of the Exhaust fan(s) and maintain building balance. The fan(s) and light(s) will continue to operate when in Auto Run Mode until all of the following shut down conditions are met: the factory set 30 minute Initial Safety Timer has elapsed, the cooking equipment has been turned off, the sensor(s) do not detect a temperature above the factory pre-set Low End Turn Off (88° F) for 3-5 minutes.

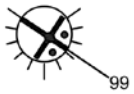
The system may also be manually operated by pressing the Light and Fan buttons; however, the system will enter "Auto Mode" if the system detects a temperature rise associated with cooking operations. If the system changes from "Manual Mode" to "Auto Mode" because of a temperature rise, it will shut down automatically once the system no longer detects a cooking operation. **Note: The system will not shut down manually or automatically until all the previously mentioned shut down conditions have been met**. For multiple hood systems, the warmest sensor must cool to the factory set point of 88° F before automatic de-activation can take place.

**WARNING: It is not recommended to adjust this system except in extreme cases. Please consult factory before attempting any adjustments.**

The microprocessor-based controller contains 4 basic adjustments:


RV1 - DELTA TEMPERATURE
FACTORY PRE-SET AT 9


RV2 - DELTA TIME
FACTORY PRE-SET AT 120




RV3 - HIGH END TURN ON FAIL SAFE
FACTORY PRE-SET AT 99


RV4 - LOW END TURN OFF FAIL SAFE
FACTORY PRE-SET AT 88

**Note: Advanced settings are password protected in the menu of the touch screen display. If your system is not operating properly, do not attempt adjusting controller before contacting customer support at 800-322-4036.**

The AFC-DCV system is designed to shut down the light(s) and MUA fan(s) and continue to run the Exhaust fan(s) in the event of fire and activate two Normally Open/Normally Closed (NO/NC) spare dry contacts (may be used for building alarm, horn strobe, etc.). Terminal STH (Shunt Trip Hot) will also provide 120 VAC for shunt trip breaker in fire mode.

## Maintenance

**CAUTION! More than one disconnect switch may be required to de-energize the equipment before servicing. Ensure all power sources have been disconnected before installing or servicing the system. VFD(s) can be holding stored energy when main supply has been switched off. DO NOT touch power connections immediately. Check power terminals for isolation from supply.**

- The Control Box door should be securely closed after opening to avoid tampering or electrical shock.

- The Control Box is a type1 electrical enclosure and is not watertight. Do not spray, soak, or submerge with water. Control Box should only be cleaned with a mild cleaner and damp cloth.

- Hood temperature sensor(s) should be cleaned often to prevent grease build up and ensure a quick response to temperature changes. Sensor(s) should be cleaned with a mild cleaner to remove grease.

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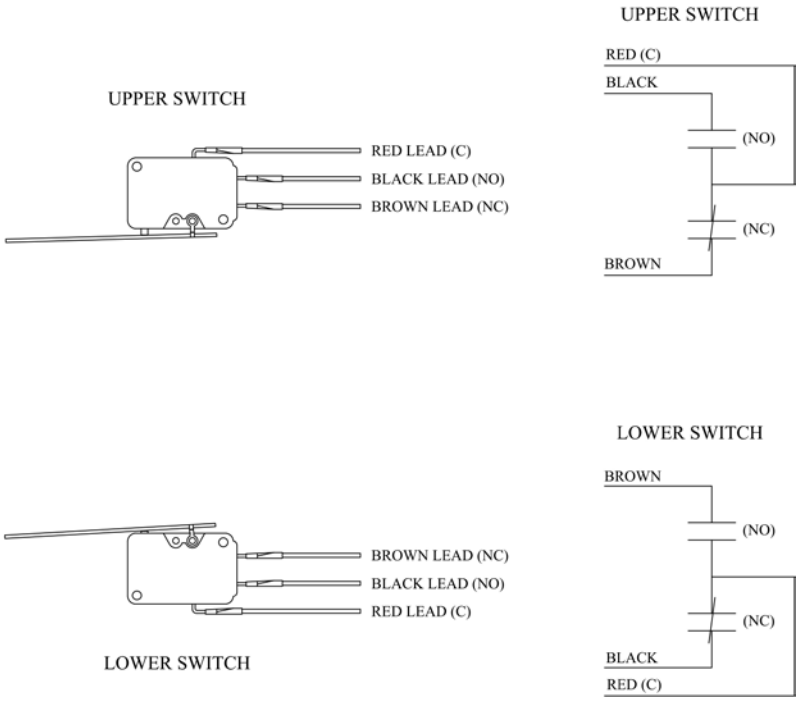
(See Pg. 6)

# ANSUL MICRO SWITCH WIRING

* DIAGRAM INDICATES MICRO SWITCH MOUNTED
INSIDE ANSUL AUTOMAN WITH SYSTEM ARMED.

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## HP to Kw Conversion Chart

| HP | Kw |
|---|---|
| 1/4 | .18 |
| 1/3 | .24 |
| 1/2 | .37 |
| 3/4 | .55 |
| 1 | .74 |
| 1 1/2 | 1.11 |
| 2 | 1.49 |
| 3 | 2.23 |
| 5 | 3.72 |
| 7 | 5.21 |