



## **Wall or Hood Mounted Wiring Packages**

### **Installation, Operation, and Maintenance Instructions**

#### **System Component:**

The Larkin Industries wall mount electrical package includes the following:

- Wall mounted 12" x 18" x 6" stainless steel enclosure with hinged door and tamper resistant latch. Enclosure may be recessed mounted (with optional trim ring).
- Door mounted light switch, pilot lighted fan switch.
- Exhaust and supply fans are interlocked and fire suppression system activated, supply fan(s) shut down and exhaust fan(s) continuous operation in fire (lights off in fire optional).
- Exhaust and supply fan starters (3 Phase) or contactors (1 Phase).
- Prewired with terminal strips and wiring diagrams.
- Wall mounted box size 12" x 18" x 6" for up to 4 starters or contactors and 18" x 18" x 6" for 5-6 starters or contactors.

**Note:** For hood mounted systems, the controls will be housed in a galvanized steel enclosure and switches will be located on the face of the hood.

#### **Important Notice To Electrician**

**This system will not operate properly without a dedicated Control circuit and two fire suppression micro switches.**

**See wiring diagram and installation instructions (page3) for wiring requirements.**

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

# Mounting Options

## Hood Mounted:

- For hood mounted wiring packages, the control panel will be mounted in a utility cabinet or on top of the hood, switches will be located on the face of the hood or utility cabinet. (see Figure 1)

## Wall Mounted:

- For wall mounted wiring packages, the control panel will be housed in a 12" x 18" x 6" stainless steel enclosure and should be secured to a fixed wall near the exhaust hood it controls. Enclosure may be recess mounted with optional trim ring. (see Figure 2)

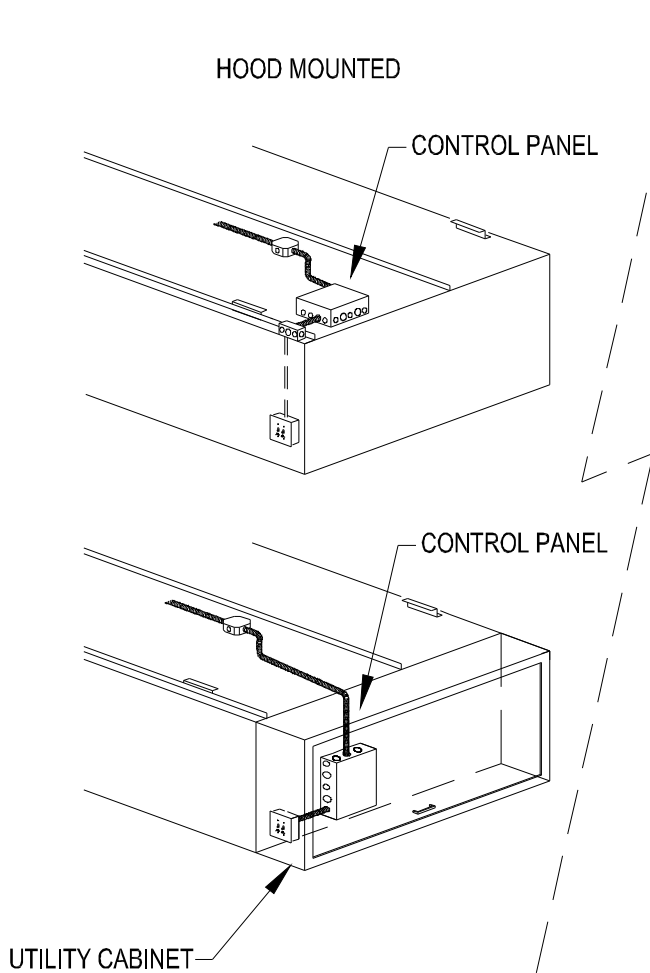


Figure 1

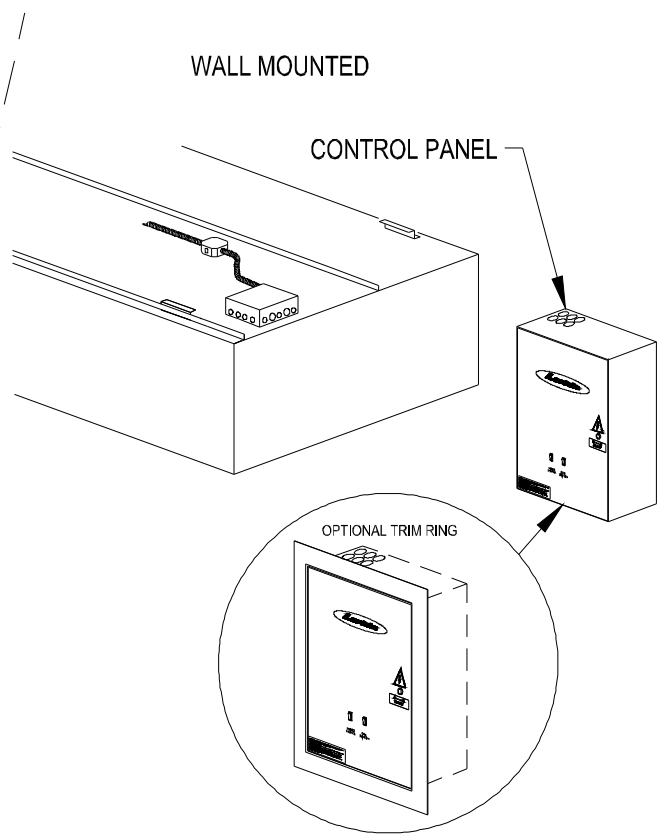
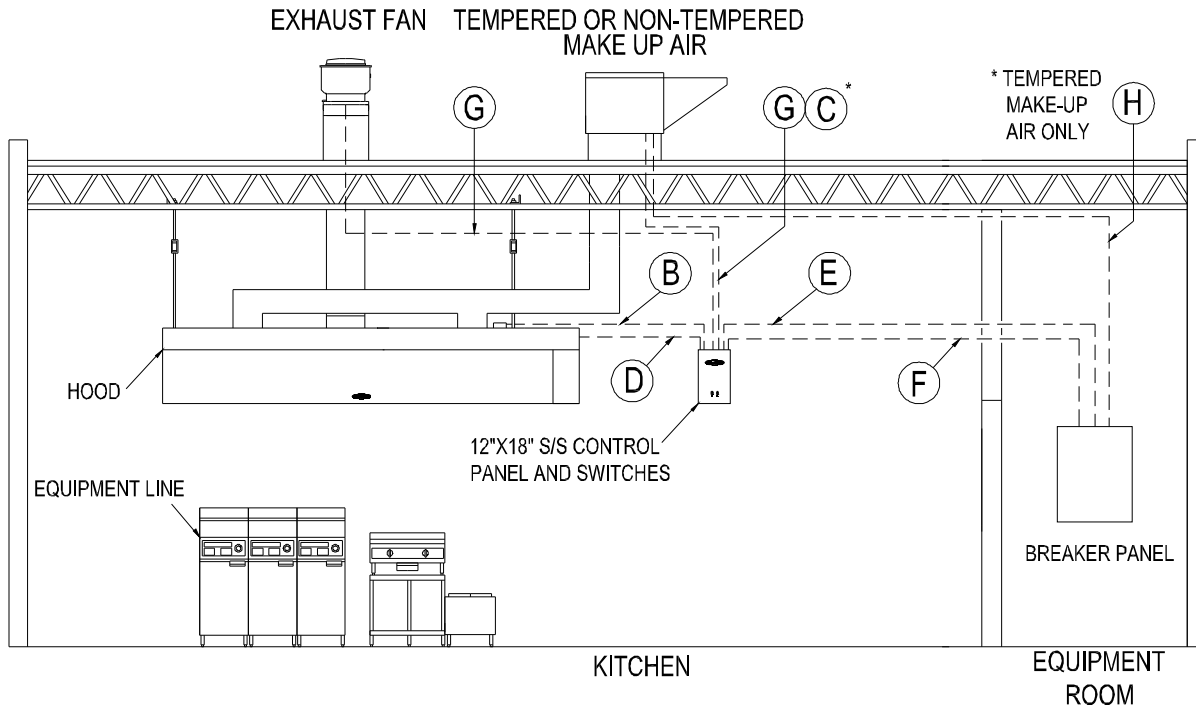


Figure 2



**Figure 3**

## Electrical Connection Required for System

S/S 12" x 18" x 6" control panel with hinged door and switches:

- (B) - Lights in hood (120V 1 Phase 20 AMP).
- (C) - \*Low voltage control wiring (if tempered make up air is provided) from unit to control panel.
- (D) - Fire suppression micro switches.
- (E) - 2 separate circuits from breaker panel:  
 (1)120VAC 15AMP for control voltage  
 (1)120VAC 20AMP for hood lights
- (F) - 1 or 3 phase power as required from breaker panel to control panel for fans (see wiring diagram.)
- (G) - 1 or 3 phase from control panel to fans (see wiring diagram.)
- (H) - \*1 or 3 phase power (if tempered make up air is provided.) from breaker panel to unit. \*

**\*Note:** If tempered make-up air is provided, the power wiring for the tempered unit must be connected directly from breaker panel. (H) and a separate control circuit connected from the unit to the control panel (C).

## Wiring Instructions

The Larkin wiring package components are all prewired. The field wiring required to connect the control panel to the hood and breaker panel should be made in accordance with the wiring diagram provided with these instructions, and the NEC (National Electrical Code) requirements.

**WARNING!** Disconnect power before installing or servicing the system. High voltage electrical input is needed for this system. A qualified licensed electrician should only perform this installation.

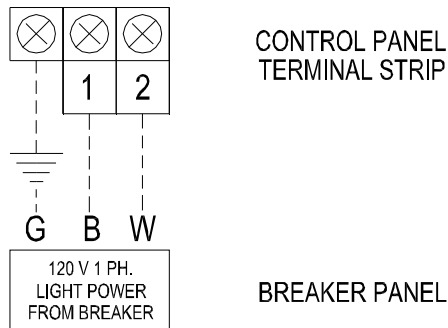
### ⚠ Important Wiring Information to Prevent Damage to Equipment ⚠

1. Check the power source to see if it is compatible with the requirements of the provided system (exhaust, supply, tempered unit etc.) The wiring package diagram list the proper phase, voltage, and amp load.
2. Verify input power voltage before connecting to starters or contactors.
3. Check rotation of fans, exhaust fans will move some air in reverse (See rotation arrow on fan). To correct rotation of fans reverse any two leads from the 3 Phase starter to the fan.
4. When wiring to a Larkin Industries tempered make-up unit, a separate control circuit must be connected to the tempered make-up unit from the control panel or the unit will not operate. (See Heated Unit wiring diagram)

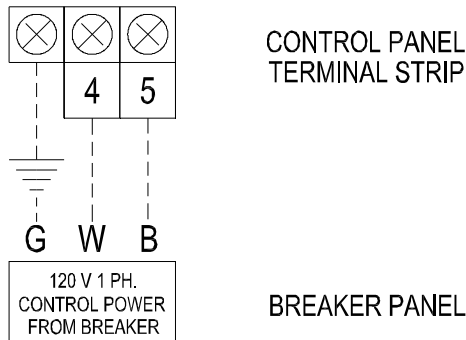
**Note:** The power wiring for tempered make up air is pulled directly from the breaker panel.

### Field Wiring Requirements for Control Panel

**Light Circuit:** 120 VAC 1 Phase 20 AMP to terminals - #1 (Hot) and #2 (Neutral) from breaker.

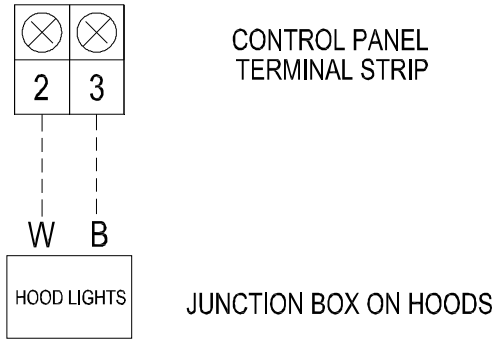


**Control Circuit:** 120 VAC 1Phase 15 AMP to terminals – 4 (Neutral) and 5 (Hot) from breaker. (Control circuit should not be wired to a shunt trip breaker.)

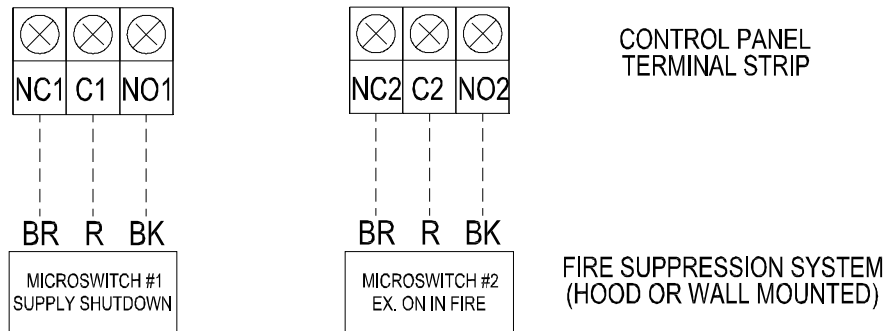


**Hood Lights:** Field wire hood light to terminals #2 (Neutral) and #3 (Hot) in the control panel.

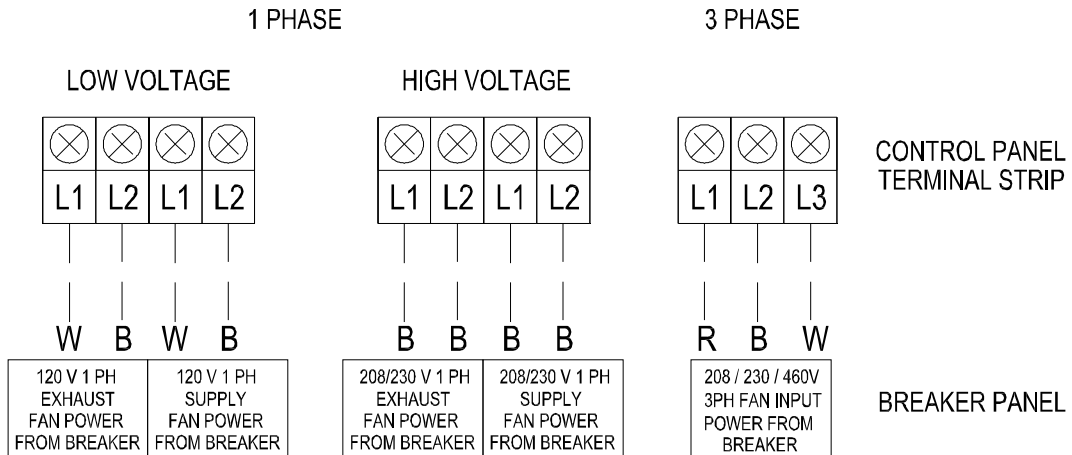
**\*Note:** This connection is factory wired on hood mounted systems.



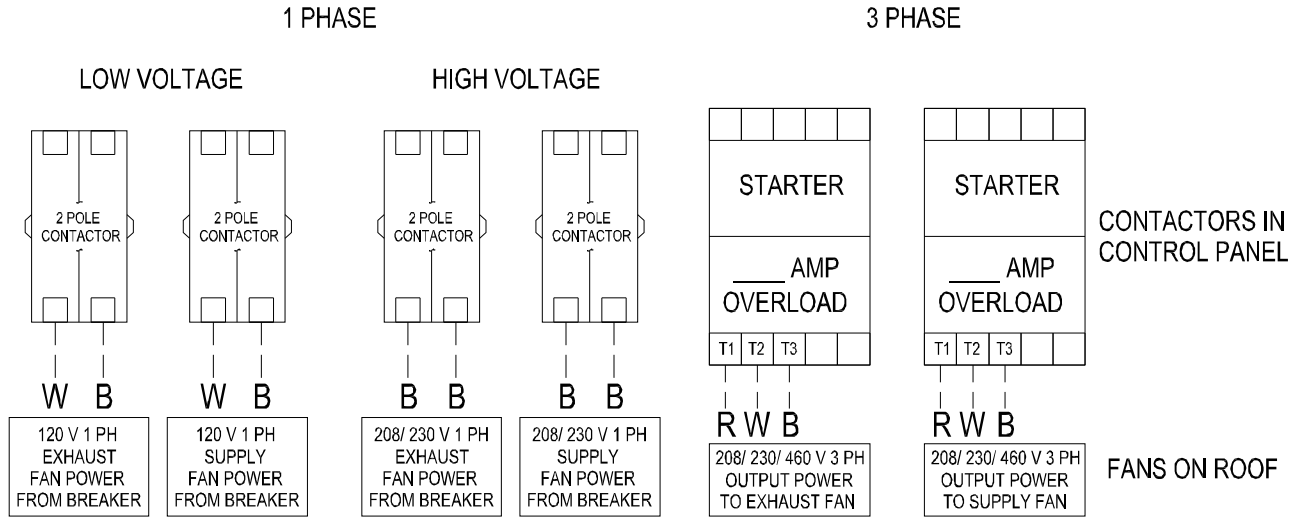
**Micro Switches:** The Larkin wiring package requires two (2) micro switches. Micro Switch # 1, for supply fan shutdown in fire, should be field wired to terminals NC1 (brown), C1 (red), and NO1 (black) in the control panel from the fire suppression system. Micro switch #2, for exhaust on in fire, should be field wired to terminals NC2 (brown), C2 (red), and NO2 (black) in the control panel from the fire suppression system.



**Fan Input Power:** Check the power source to see if it is compatible with the requirements of the provided system. The wiring diagram list the proper phase, voltage, and amp load. Verify input power voltage before connecting to starters or contactors.

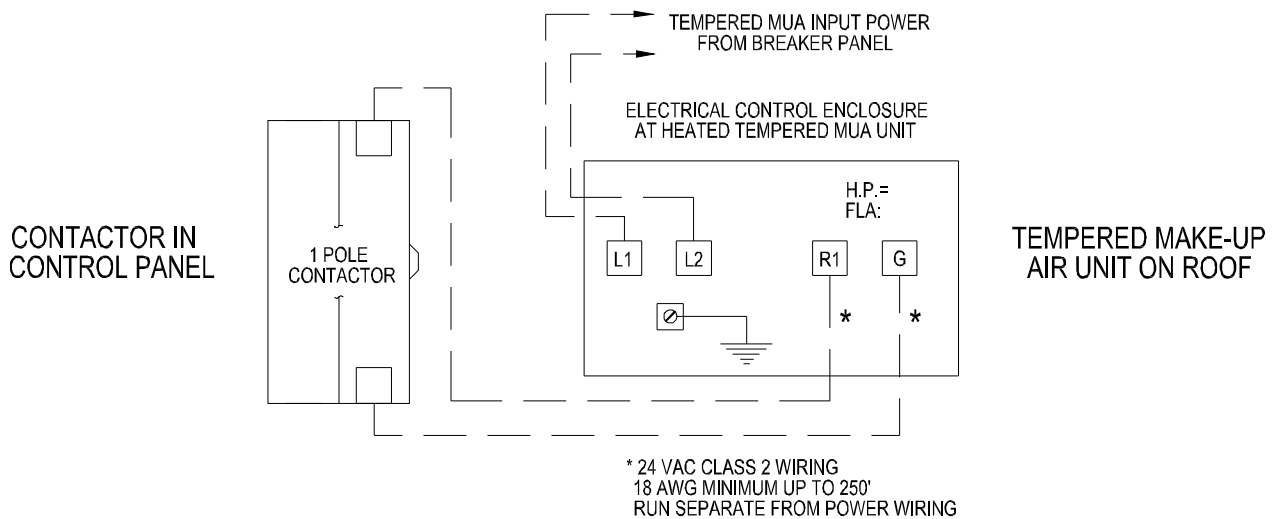


**Fan Output Power:** Connect output power to proper fan from contactor(s) or starter(s) terminals T1 and T2 (1 Phase) or T1, T2, and T3 (3 Phase). Check rotation of fans, exhaust fans will move some air in reverse (See rotation arrow on fan). To correct rotation of fans reverse any two leads from the 3 Phase starter(s) to the fans. For 1 Phase fans, see instructions on motor plate to reverse rotation.



When wiring from control contactor to a Larkin Industries tempered make-up air unit, use low voltage wiring to control panel located in unit. **NOTICE:** Remove jumper from terminals R1 and G in the tempered makeup-air unit.

**Note:** The power wiring for tempered make up air is pulled directly from the breaker panel.



## Installation Check List

- Control panel is mounted next to the exhaust hood it controls.
- Two separate circuits (115VAC 15AMP control & 115VAC 20AMP hood lights) have been connected from breaker panel to control panel. Ground wire is connected!!
- Hood lights have been connected from control panel to hood.
- Two Ansul micro switches are wired to control panel from fire system.
- Input power of proper Phase & Voltage from breaker panel is connected to each starter or contactor terminals L1, L2 (1 Phase) or L1, L2, L3, (3 Phase) and ground in control panel.
- Output power from starters or contactors and grounds are connected to the proper fans on the roof (Exhaust to Exhaust, Supply to Supply).

### Optional Equipment:

- If tempered make up air is used, it must be Larkin ordered with starter/ contactor in unit and power wiring from breaker panel of proper voltage and phase connected to unit.
- Jumper from terminal R1 and G is removed in the tempered make-up air unit.
- Separate low voltage wiring is connected from tempered make up air unit to supply contactor in control Panel.

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

## System Startup

1. Turn on all breakers that power the fan starter(s) or contactor(s), control panel power, hood lights, tempered make-up air unit power (If tempered unit is used). Check with a voltage meter for proper voltage at all terminals with fan switch off.
2. Turn on fan switch. The fan switch should illuminate. This indicates the fans are operating.
3. Check the rotation of the fans. (**Note:** The exhaust fan will exhaust some air while rotating backward. You must check the direction arrow on the fan. To reverse rotation, (3 Phase only) change any 2 leads connected to the starter (T1, T2, T3). For 1 Phase, rotation must be changed at the motor (see instructions on motor plate).

**WARNING!** Disconnect all power sources before servicing fans or equipment.

4. Adjust motor pulley for required CFM. Compare motor amperage with nameplate on motor. Unit should be rechecked after 3 days of operation for proper amperage of motor, belt tension, belt alignment, rotation and ensure all bolts and set screws are tight and blower is still properly aligned.

Verify that motors and bearings have proper lubrication and that the belts have proper tension. Deflection in belt tension should not exceed 1/2".

Check that the air intake filters are in place and clean and that the fire damper in the hood supply collar is open. If the airflow as measured is not in accordance with the project specifications, adjust the speed of the respective fans as required. (For further instructions refer to fan installation and maintenance instructions.)

5. Turn on the light switch to energize the hood lights.  
If lights are not working:
  - A. Verify that the bulbs are installed.
  - B. Verify that the fire suppression micro switches are connected and armed.
  - C. Verify that all connections to hood(s) have been made.
6. The start up is now complete. To test the systems fire suppression interlock follow the test procedures in the next section.

## Test Procedures

**Test** - Testing the fire system interlock. The system is designed to shut down the supply fan(s) and run the exhaust fans (lights off in fire optional). To conduct the test with the fan and light switches in the on position, simply trip the micro switches. The exhaust fan will continue to run and the supply fan will shut off (lights will turn off optional). After testing, place the micro switches back to the normal position, supply fan will re-start (lights will come back on optional).

## System Operation

The system is now fully operational. For hood lights, use the light switch located on the face of the hood or control panel. The fan switch will control both exhaust and supply fans simultaneously. In the event of a fire, the supply fan will automatically shut down and the exhaust fan(s) will continue to run regardless of the fan switch position.

**Note:** The hood lights will be turned off if equipped with lights off in fire option. If tempered make-up air is used, see the tempered make-up air installation and operations instructions.

## Maintenance

**WARNING!** Do not attempt maintenance, repairs, or adjustments on this system until all electrical power has been completely disconnected.

- The Control panel door should be securely closed after opening to avoid tampering or electrical shock.
- The control panel is a type1 electrical enclosure and is not watertight. Do not spray, soak or submerge with water. Panel should only be cleaned with a mild cleaner and damp cloth.