



July 2020

Fan Control

Installation, Operation, and Maintenance Instructions

Description:

The Larkin Industries, Inc. Fan Control will energize the fan(s) and lights utilizing switches mounted in the face of the Control Box. It may also automatically energize the fan(s) prior to cooking operations commencing per IMC code 507.1.1 by means of a Cal-Stat sensor (by others).

System Components:

The Larkin FC (Fan Control) wall mount Control Box includes the following:

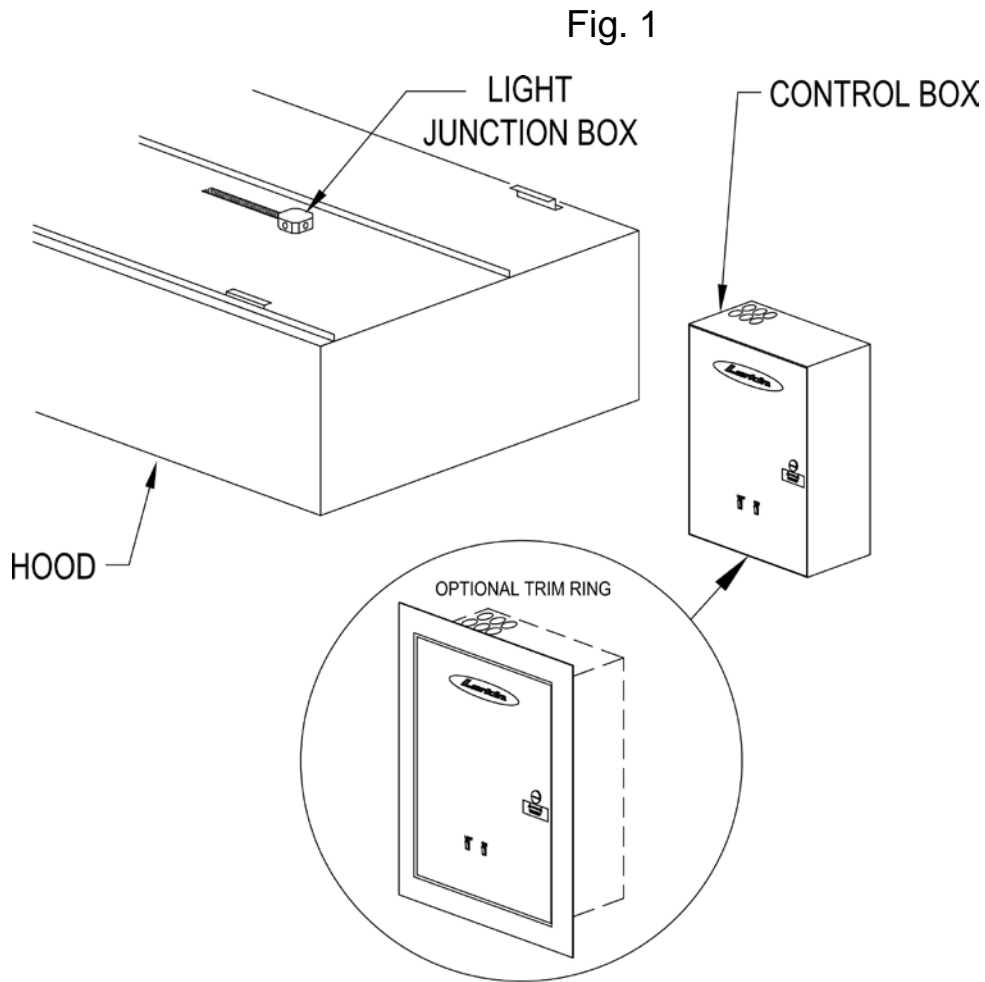
- Wall mounted 12" x 22" x 6" stainless steel enclosure with hinged door and tamper resistant latch.
- Switches mounted on enclosure door for system operation.
- Exhaust and Make Up Air (MUA) fan(s) are interlocked. If hood Fire Suppression System is activated, the MUA fan(s) shut down. The Exhaust fan(s) will continue to operate.
- Terminal connections for Cal-Stat temperature sensor (Cal-Stat by others).
- Exhaust and MUA fan starter(s) (3 Ph) or contactor(s) (1 Ph).
- Prewired with terminal strips and wiring diagrams.

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

Mounting

Wall Mounted:

- For wall mounted FC, the Control Box will be housed in a 12" x 22" x 6" stainless steel enclosure and should be secured to a fixed wall near the exhaust hood(s) it controls (Fig. 1). Enclosure may be recess mounted with optional trim ring (See Figure 2).



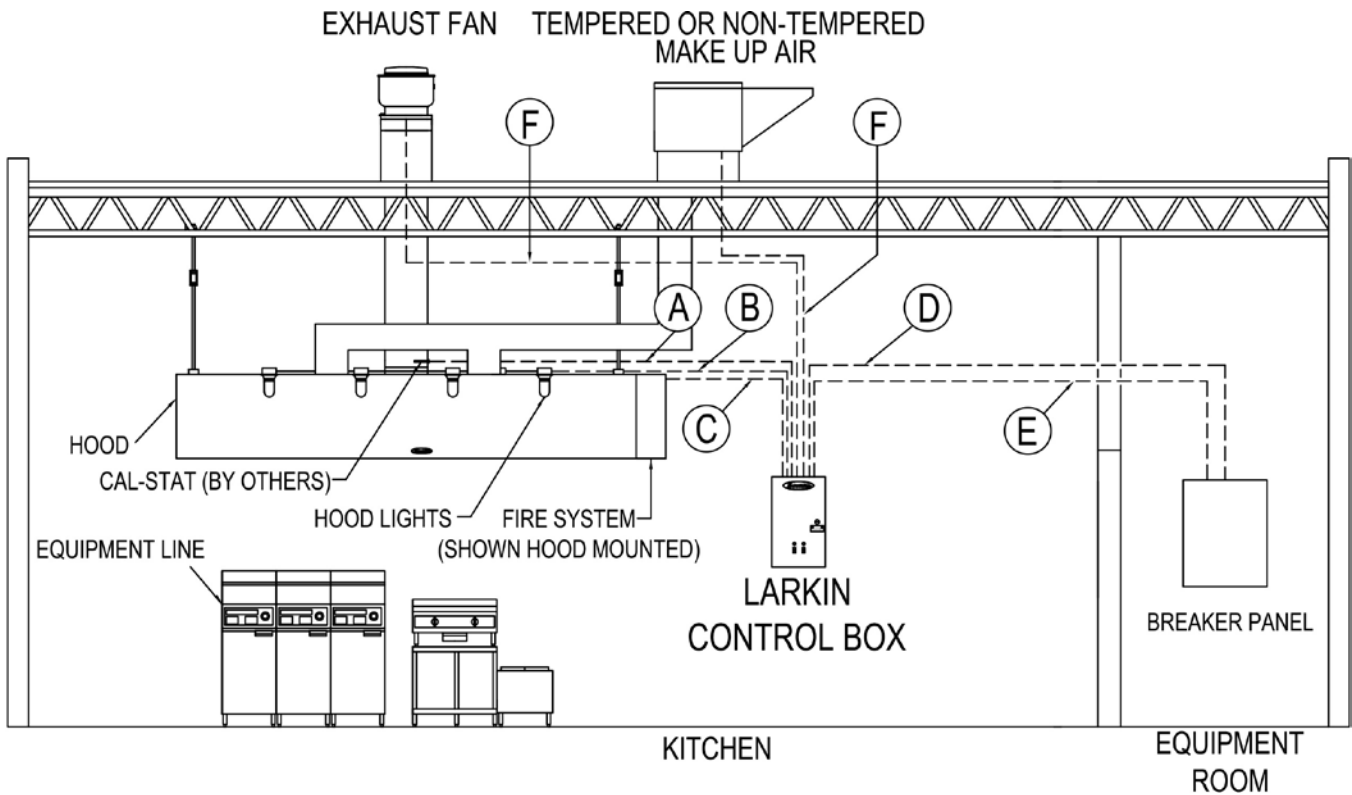


Figure 3

Connections Required for System

Larkin Industries, Inc. S/S 12" x 22" x 6" FC Control Box with hinged door and switches:

- A – Wiring to Cal-Stat (by others) if required
- B – Wiring to lights in hood(s)
- C – Fire suppression micro switch wiring
- D – Two separate circuits wired from breaker panel:
 - (1) 120 VAC 15 AMP for control voltage
 - (2) 120 VAC 15 AMP for hood lights(s)
- E – 1 or 3 Phase power as required wired from breaker panel to Control Box for fan(s) (See wiring diagram)
- F - 1 or 3 Phase power as required wired from Control Box to fan(s) (See wiring diagram)

Wiring Instructions

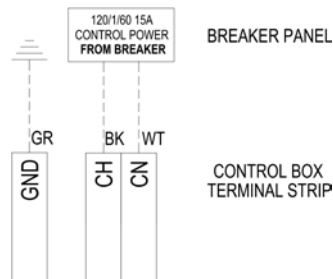
The Larkin FC components are all prewired. The field wiring required to connect the Control Box to the hood(s) and breaker panel should be made in accordance with the wiring diagram provided with these instructions and the NEC (National Electrical Code) requirements.

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. High voltage electrical input is needed for this system. Only a qualified licensed electrician should perform this installation.

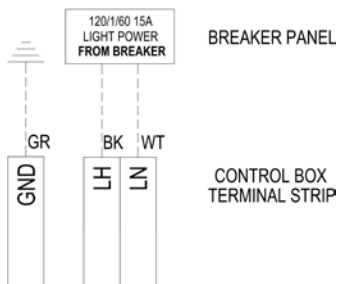
1. Check the power source to see if it is compatible with the requirements of the provided system. The Larkin FC wiring diagram lists the proper phase, voltage, and amp load.
2. Verify input power voltage before connecting to starters or contactors.
3. Check rotation of 3 Ph fan(s). Exhaust fan(s) will move some air in reverse (See rotation arrow on fan). To correct rotation of fan(s), reverse any two leads from the 3 Ph starter to the fan.

Field Wiring Requirements for Control Panel

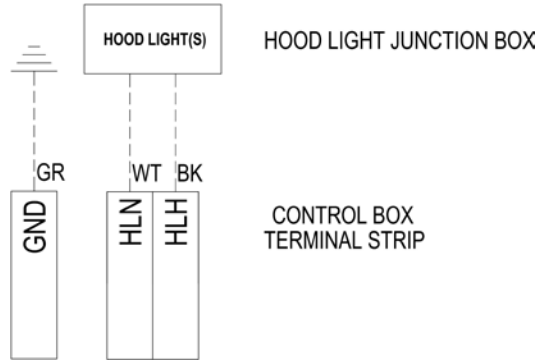
Control Circuit: Field wire 120 VAC 1 Phase 15 AMP to the Control Panel terminals Control Hot (CH), Control Neutral (CN) and Ground (GND) from breaker panel. **Control circuit should not be wired to a shunt trip breaker.**



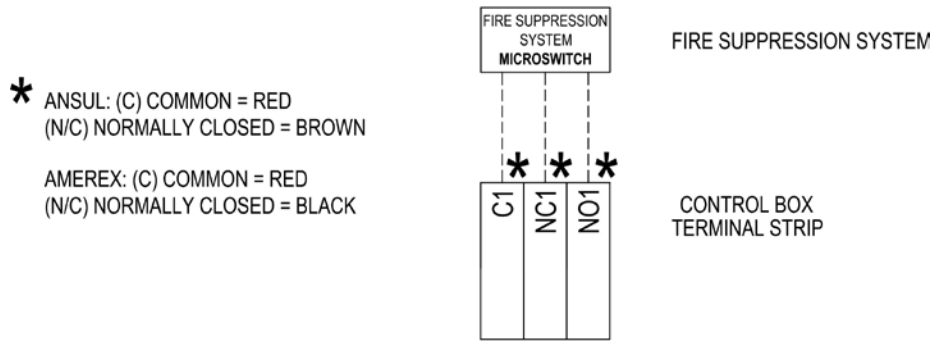
Light Circuit: Field wire 120 VAC 1Phase 15 AMP circuit to the Control Box terminals Light Hot (LH), Light Neutral (LN) and Ground (GND) from breaker panel.



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

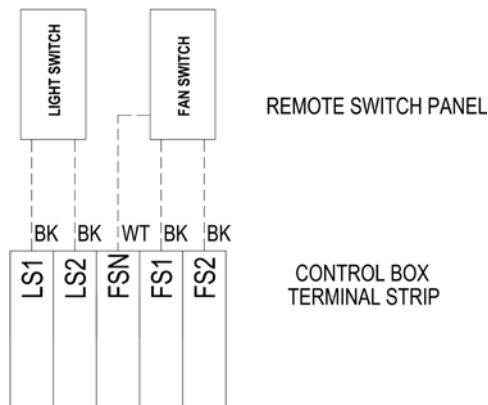


Micro Switch: The Larkin FC requires a Fire Suppression System Micro-Switch connection. The Micro-Switch should be field wired from the Fire Suppression System to the Control Box connecting the Common (C) lead from the Micro-switch to the C1 terminal in the Control Box. Connect the Normally Closed (NC) lead from the Micro-switch to the NC1 terminal in the Control Box and the Normally Open (NO) lead from the Micro-switch to the NO1 terminal in the Control Box. **Warning: DO NOT apply voltage through Micro-Switch.**

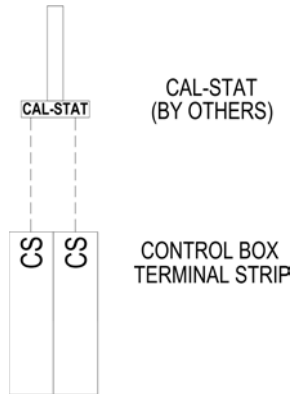


(See micro switch mounting options on page 8)

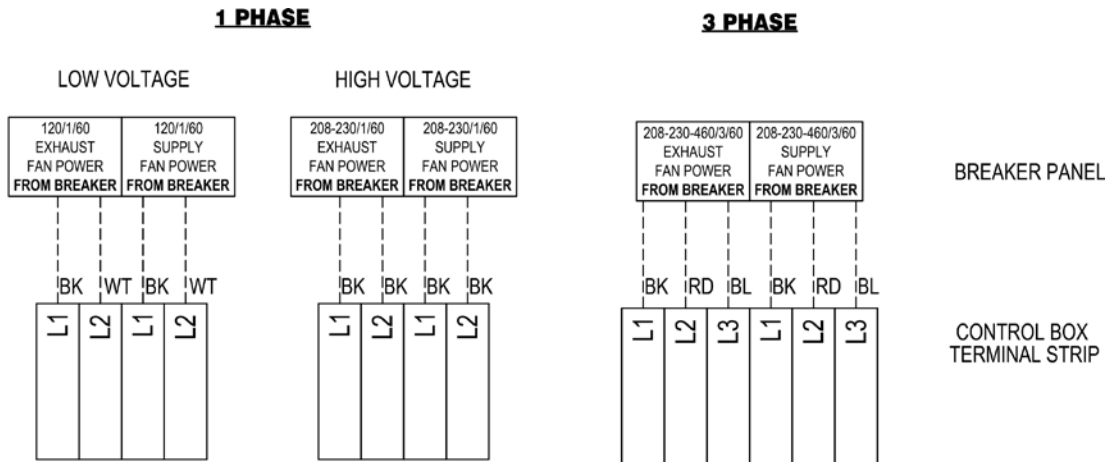
Remote Switch Panel: When a remote switch panel is required, field connections must be made from the Light Switch to terminals Light Switch 1 (LS1) and Light Switch 2 (LS2). Field connections also must be made from the Fan Switch to terminals Fan Switch 1 (FS1), Fan Switch 2 (FS2) and Fan Switch Neutral (FSN) (for lighted switch only) in the Control Box.



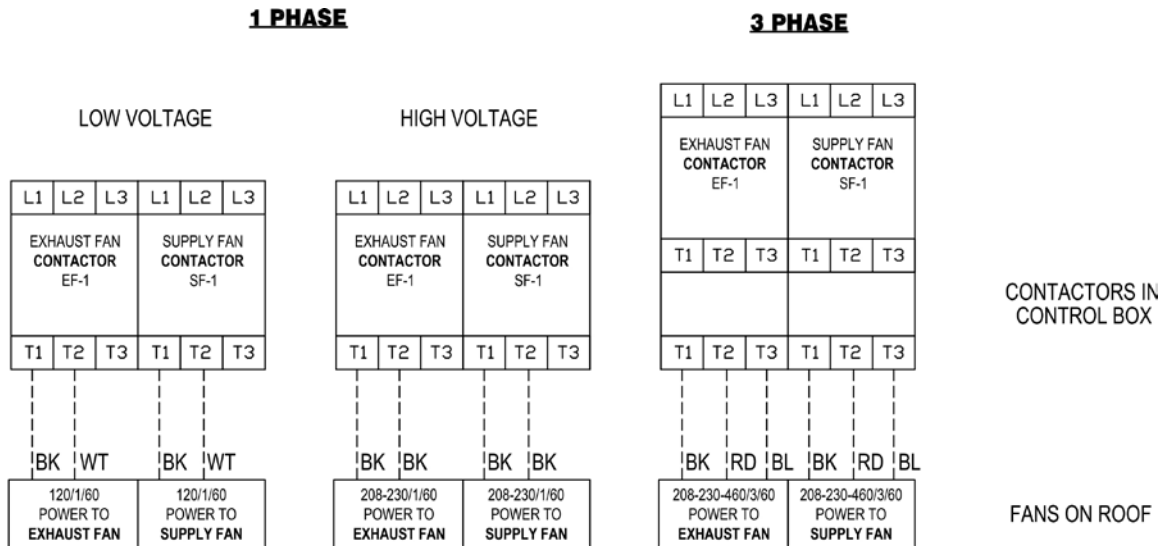
Cal-Stat: When a Cal-Stat is required, field connections must be made from the Cal-Stat to terminals CS in the Control Box.



Fan Input Power From Breaker Panel: Check the power source to see if it is compatible with the requirements of the provided system. The FC wiring diagram lists the proper Phase, Voltage, and Amp load. Verify input power voltage before connecting to starters or contactors. 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 Contactor(s) or Starter(s): Field wire 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 fan(s). **Note:** Exhaust fan(s) will move some air in reverse (See rotation arrow on fan). Changing rotation may be accomplished by reversing any two leads from the 3 Ph starter(s) in the Control Box to the fan(s). For 1 Ph fan(s), see instructions on motor plate to reverse rotation.



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. 3 & 4)?
- Are hood lights connected from the Control Box to the hood light junction box per NEC (See Pg. 3 & 5)?
- Is there a Micro-Switch wired to the Control Box from the fire system (See Pg. 3 & 5)?
- Is the Cal-Stat (by others) wired to the Control Box if required (See Pg. 3 & 5)?
- Is input power of proper Phase and Voltage from the breaker panel connected to each starter or contactor terminals L1, L2 (1 Phase) or L1, L2, L3, (3 Phase) per NEC in the Control Box (See Pg. 3 & 6)?
- Is output power from starter or contactor terminals T1, T2 (1 Ph) or T1, T2, and T3 (3 Ph) in the Control Box connected to the proper fan(s) on the roof (Exhaust to Exhaust, Supply to Supply) per NEC (See Pg. 3 & 6)?

System Startup

Turn on all breakers that power the fan starter(s) or contactor(s), Control Box power, hood lights. Check for proper voltage at all terminals with fan switch off.

With the fan switch in the off position, turn on the "LIGHT" switch to energize the hood lights. The light(s) should come 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 light(s) by returning the light switch to the off position.

Turn on fan(s) using the "FAN" switch. The fan switch should illuminate. This indicates the fan(s) should be operating. If fan(s) are not operating, check all connections to and from Control Box.

Check the rotation of the fans. **Note:** The exhaust fan(s) will exhaust some air while rotating in reverse. Checking rotation may be accomplished in two different ways, (1) by comparing the direction the fan wheel is rotating to the direction arrow on the fan(s) or (2) check the amperage of each fan with a meter. A fan turning in reverse rotation will exceed the rated FLA of the motor. If the amperage is higher than the listed FLA for the fan, it is spinning in reverse rotation. To reverse rotation, (3 Ph 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).

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.

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

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.

- 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.

(See Pg. 5)

ANSUL MICRO SWITCH WIRING

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

