

# ACCUSTAT®

## Instruction Sheet

LAH-11

LAH-11E

LAH-22

PSG Controls, Inc.

The LAH series ACCUSTAT® is a low voltage cooling and heating control. It is designed for 24 - 30 volt systems. Maximum load rating is 1 amp @ 24 - 30VAC.

ACCUSTAT® controls utilize pre-set sensors which activate SPST solid state circuits. Cooling and heating circuits are isolated from each other and have separate sensors. ACCUSTAT® sensors are hermetically sealed and calibrated to the indicated temperature settings.

As room temperature increases, the rising column of mercury inside the sensor comes in contact with platinum electrodes. When contact is made solid state circuitry is activated. The solid state switch turns the heating system off or the cooling system on, depending on what is called for.

As room temperature drops, the column of mercury falls and the solid state switch turns the heating system on or the cooling system off, again depending on what is called for.

Each ACCUSTAT® in the LAH series has an override switch with an OFF position to prevent system operation. These controls also feature heat and cool temperature selection switches. A FAN ON/AUTO switch is provided for the cooling cycle.

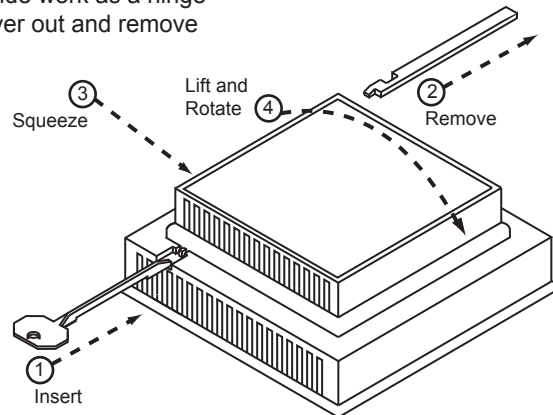
The "E" model is used with low voltage electric heating systems. It is designed to turn on the blower immediately when the thermostat calls for heat.

### GENERAL INSTRUCTIONS

- CAUTION: Make sure that power has been disconnected.**
- All wiring must comply with applicable codes and ordinances.
- Sensors are made of glass and have been inspected and calibrated at the factory. Handle with care. Do not drop.
- The LAH series incorporates an integral locking cover. See instructions on proper removal and replacement of cover.
- Always place an ACCUSTAT® control in OFF position before installing sensors.
- CAUTION:** After system has been tested, make sure that sensors are once again snapped into their clips properly. See instructions on next page. If heat sensors are not snapped into clips properly, the heating system will NOT turn off. If cooling sensors are not snapped into clips properly, the cooling system will NOT turn on.
- A thorough check-out of the system should be made after installation.
- On systems using low voltage gas valves, NEVER APPLY A JUMPER ACROSS VALVE COIL TERMINALS. A burn-out of ACCUSTAT'S solid state circuit may result.

### TO OPEN:

- Align key with slot and insert all the way
- The locking pin will emerge. Pull out completely
- Gently squeeze left side of cover to release catches
- Let right side work as a hinge  
Swing cover out and remove



### TO CLOSE: (Reverse Procedure)

- Hinge right side of cover and close it
- Gently squeeze left side of cover and snap shut
- Orient the locking pin as shown and slide in until end is below surface of cover (audible snap is heard when pin is properly seated)

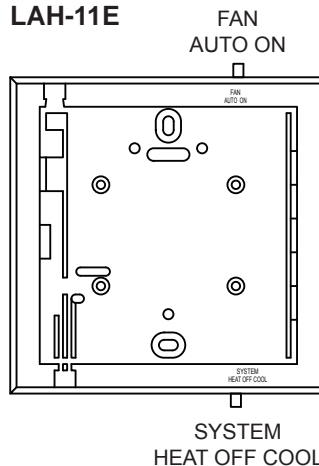
**CAUTION:** Do not attempt to remove or replace the ACCUSTAT® cover without releasing the locking pin by procedure described above.

### MOUNTING ACCUSTAT® CONTROL

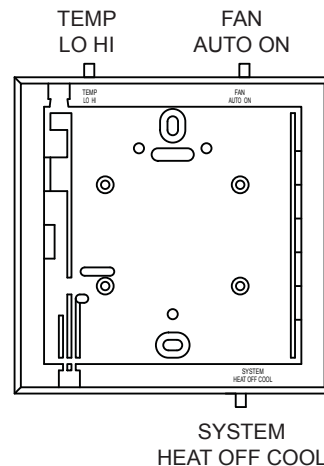
- Choose a location about five feet above the floor in an area where there is good air circulation. Such an area will provide an average room temperature.
- Do NOT mount ACCUSTAT® control where it may be affected by drafts, hot or cold air from ducts or radiant heat from the sun or appliances.
- Pull thermostat cable through hole in wall or outlet box.
- Plug wall hole to prevent drafts which may affect thermostat.
- Mount ACCUSTAT® control to wall or outlet box.

### ACCUSTAT® CONTROL SWITCH LOCATIONS

LAH-11  
LAH-11E

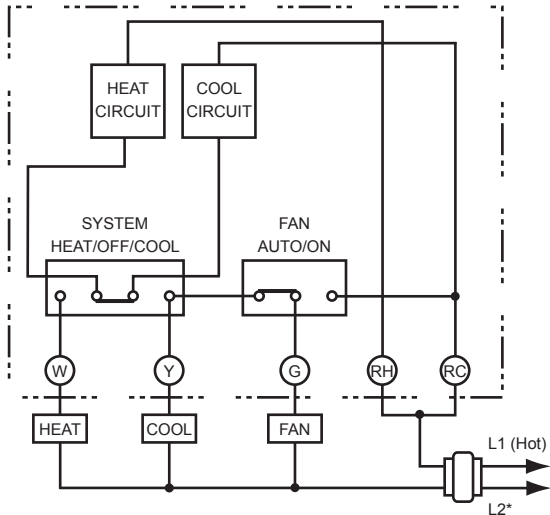


LAH-22

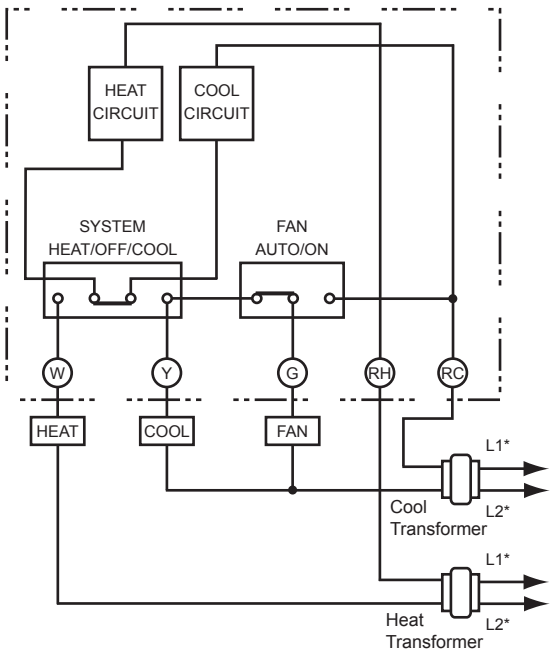


## WIRING ACCUSTAT® CONTROL

All wiring must comply with local electrical codes. The LAH series ACCUSTAT® is adaptable to most standard 24 - 30VAC cooling and heating systems. Maximum load rating at 24 - 30 volts is 1 amp. The following hookups are typical of cooling and heating applications.



### Typical Wiring Diagram System with Separate Transformer LAH Series ACCUSTAT®

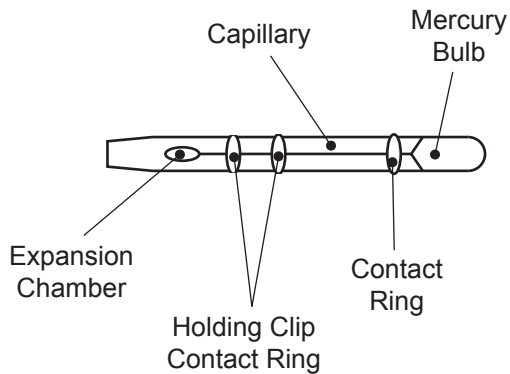


\*Provide disconnect means and overload protection as required.

**NOTE:**

RC and RH terminals are provided in all LAH models. WHERE A COMMON TRANSFORMER IS USED FOR HEATING AND COOLING, A JUMPER SHOULD BE INSTALLED BETWEEN RC AND RH AS SHOWN ABOVE.

WHERE SEPARATE TRANSFORMERS ARE USED, RC AND RH ARE ATTACHED TO THEIR RESPECTIVE TERMINALS, WITH NO JUMPER BETWEEN.



## INSTALLING ACCUSTAT® SENSORS - TURN OFF POWER

1. Carefully remove sensors from box.
2. Check mercury column to make sure that there is no separation in column. If examination reveals a separation, reunite column as follows:
  - A. Heat sensor bulb gently with match until mercury rejoins.  
**DO NOT OVER HEAT!** If expansion chamber at top of sensor fills to more than one quarter of its volume, the sensor may crack.
  - B. After mercury is rejoined, hold sensor in vertical position, bulb end down, until it cools. Allow to cool gradually.  
**DO NOT TOUCH GLASS NEAR BULB END WHILE IT IS STILL HOT.**
3. **TO SNAP SENSOR IN CLIPS:**
  - A. Hold sensor with mercury bulb at bottom.
  - B. Line up two top bands on sensor with sensor clips.
  - C. Press firmly on bands until they engage clips with a snap.
  - D. Check visually to be sure that solid contact is made between sensor band and the holding clip.

## SYSTEM START-UP AND CHECK-OUT

## Model LAH-11E

1. Place SYSTEM switch in OFF position.
2. Snap cooling sensor in COOL LO clips.
3. Place SYSTEM switch in COOL position.
4. Test with CHECK-OUT SYSTEM A (see next page).
5. Place SYSTEM switch in OFF position.
6. Snap heating sensor in HEAT LO clips.
7. Place SYSTEM switch in HEAT position.
8. Test with CHECK-OUT SYSTEM B (see next page).

## Model LAH-22

1. Place SYSTEM switch in OFF position.
2. Snap cooling sensor in COOL LO clips.
3. Place SYSTEM switch in COOL position.
4. Place TEMP switch in LO position.
5. Test with CHECK-OUT SYSTEM A (see next page).
6. Repeat above procedure with high cooling sensor in COOL HI clips and TEMP switch in HI position.
7. Place SYSTEM switch in OFF position.
8. Snap heating sensor in HEAT LO clips.
9. Place SYSTEM switch in HEAT position.
10. Place TEMP switch in LO position
11. Test with CHECK-OUT SYSTEM B (see next page).
12. Repeat above procedure with high heating sensor in HEAT HI clips and TEMP switch in HI position.

### CHECK-OUT SYSTEM A COOLING SYSTEM

If room temperature is below sensor setting, cooling system should be off. Place finger or match on sensor bulb. Allow sensor column to reach top contact. Cooling should come on. If room temperature is above sensor setting, cooling system should turn on. To test, pull sensor from clips. Cooling system should turn off.

### CHECK-OUT SYSTEM B HEATING SYSTEM

If room temperature is below sensor setting, heating system should turn on. Place finger or match on sensor bulb. Allow sensor column to reach top contact. Heating should turn off. If room temperature is above sensor setting, heating system should turn off. To test, pull sensor from clips. Heating system should turn on.

**NOTE:** If system does not operate at the proper temperature, examine the sensors for separation and make certain the holding clip contact rings are positioned in clips properly.

### TESTING ACCUSTAT® CONTROL

In order to test with a voltmeter, the ACCUSTAT® control must have voltage applied to its terminals. Connect all wires as illustrated in the wiring diagrams.

**CAUTION:** To prevent damage to the ACCUSTAT® when measuring voltage across terminals, use only a voltmeter or multimeter. NEVER use an electromechanical voltage indicator such as a Wigginton type tester.

### FAN CIRCUIT

Place FAN switch in ON position. Place voltmeter across R and G. The voltmeter should read zero. Then place FAN switch in AUTO position. The voltmeter should read between 24 and 30 volts when control is NOT calling for cooling or heating. If control is calling for cooling or heating, the voltmeter should read 3 volts or less.

### COOLING CIRCUIT

Place voltmeter across R and Y.

When control is calling for cooling, the voltmeter should read 3 volts or less.

When control is NOT calling for cooling, the voltmeter should read between 24 and 30 volts.

### HEATING CIRCUIT

Place voltmeter across R and W.

When control is calling for heating, the voltmeter should read 2 to 3 volts.

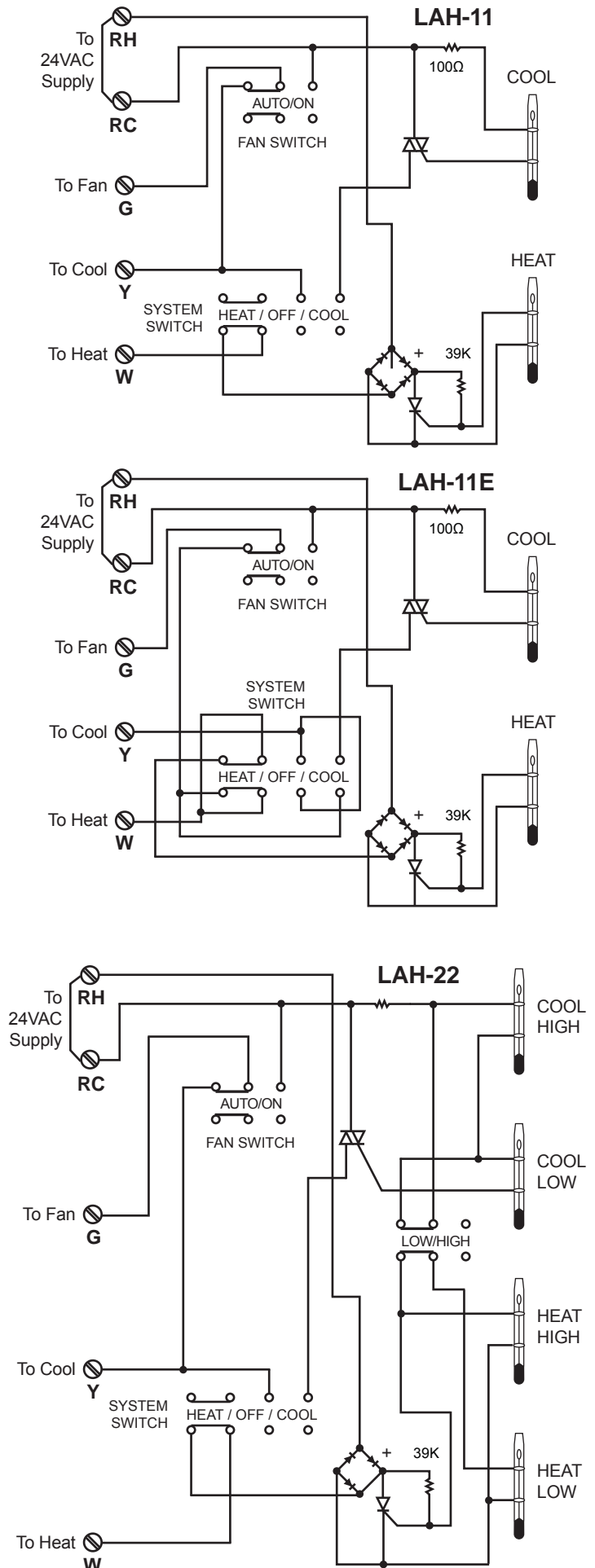
When control is NOT calling for heating, the voltmeter should read between 24 and 30 volts.

### ACCUSTAT® TROUBLE SHOOTING

The most common ACCUSTAT® service problems are:

1. Sensor column separation.
2. Low voltage.
3. Exceeding design load rating.

These are the root causes of at least half of the problems encountered in the field. Attention to all three, at time of installation, will eliminate the largest percentage of difficulties and subsequent call backs. Consult the ACCUSTAT® technical manual for further trouble shooting information.



PSG Controls, Inc.  
LIMITED WARRANTY POLICY

PSG Controls, Inc. (Hereinafter referred to as "PSG") warrants the following:

Only cataloged products sold to distributors are warranted to the original purchaser, to conform with specifications furnished or approved by PSG, and to be free from defects in material and workmanship, for a period of one (1) year from the date of purchase, unless specified in writing for a different period.

Any PSG product that proves defective within the above described warranty period will be repaired or replaced (at PSG's option) free of any charge if returned to the PSG factory at 1225 Tunnel Road, Perkasie, PA. 18944 with transportation charges prepaid. Prior to returning this product to PSG, the purchaser shall give PSG notice in writing stating how this product fails to fulfill this warranty. No product shall be accepted for repair or replacement without a required written notice and without prior written authorization and shipping instructions having been received by the purchaser from PSG. Only PSG's factory is authorized to perform services under this warranty.

This warranty does not extend to any product that has been subjected to misuse, abuse, neglect, accidents, alterations, improper installation or use in violation of the printed instructions furnished by PSG. This warranty neither applies to batteries nor deterioration of, nor damage to the product caused by the use of faulty batteries. Final determination as to whether any product is actually defective rests solely with PSG.

This warranty is expressly in lieu of all other agreements and warranties, expressed, implied, or statutory and PSG has no other obligations or liabilities in connection with this product. In no event shall PSG's obligation or liability hereunder exceed the purchase price of this product. PSG SHALL NOT IN ANY EVENT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. This warranty gives you specific legal rights, and you also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, or implied warranties, so the above limitations or exclusion may not apply to you.

Toll free technical assistance is available  
via our technical hotline: 1-800-523-2558  
Mon-Fri, 8:00 A.M. to 4:30 P.M. Eastern Standard Time



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