

# Integrated Heating System

**Model 5474  
Model 5474A  
Model 5474L**

**Operating Manual**

7/05/06



**electro-tech systems, inc.**

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## 1.0 GENERAL DESCRIPTION

The Model 5474/5474A Integrated Heating System, shown in Figure 1, is a 500 Watt heating system that consists of a stainless steel strip heating element, 135°F (57°C), thermal overload sensor, power on indicator and a 110 cfm fan for use in small controlled environment chambers. In addition, a weather-tight AC accessory outlet box with a GFCI outlet for 115 VAC or a duplex North American outlet for 230 VAC is provided. The Model 5474 houses the components in a stainless steel enclosure measuring 16"Wx13"Hx3.125"D (41x33x8 cm). The 5474L, a larger version of the 5474, measures 30"Wx16.875"Hx4.125"D. On all 5474's the heater, fan and AC outlet are IEC power input modules.

The Model 5474A utilizes a stainless steel enclosure with 4 replaceable HEPA filters and a gasket seal for installation onto the surface of the chamber. The standard unit incorporates 3 IEC power connectors to accept standard IEC power cords. Otherwise, the Model 5474A operates the same as the Model 5474.

The system can be customized to meet most user requirements by adding or removing accessories.

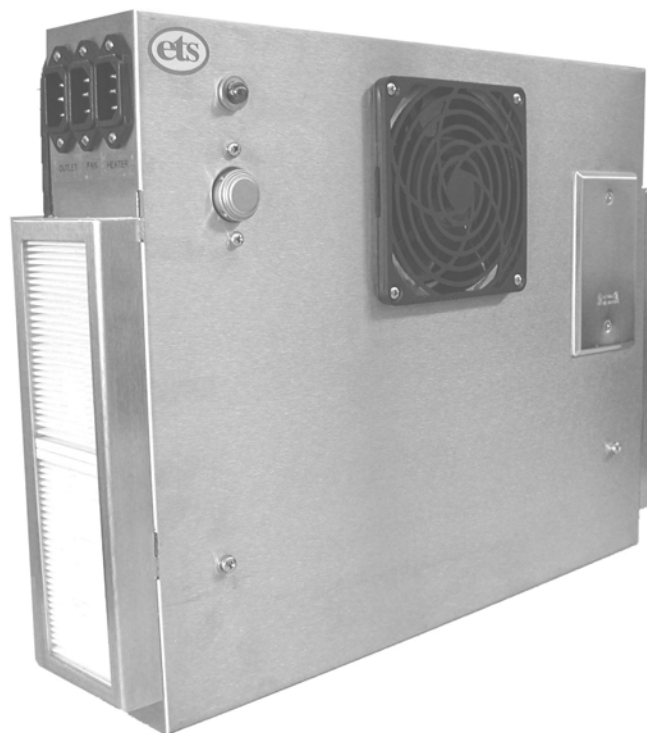


Figure1: Model 5474A Integrated Heating System

## 2.0 INSTALLATION

### 2.1 Mechanical Installation

The Model 5474/5474A/5474L is designed for vertical mounting, but may also be mounted horizontally if insulation is added to the rear of the unit. (Since heat rises and the distance between the heater and the mounting surface will be only 1.5" (4 cm) the mounting surface will be hotter than with the vertical mount. If a plastic surface is used and the heater is run at maximum temperature the distortion temperature of the material may be exceeded.)

The standard system requires 4, #8-32 screws for mounting. The hole pattern is a 12"x12" (30.5 cm) square. The mounting hole diameters are .188" (5 mm). The 5474L requires 6, #8-32 screws in which the mounting holes measure 15.875" vertically and 11.5" from the center hole to the outside holes.

The Model 5474 enclosure is mounted directly against the surface. If insulation is used it should be cut to the full dimensions of the enclosure.

The Model 5474A has a ¼" (6 mm) thick foam rubber gasket. If insulation is used it should be cut so that it fits inside the gasket. When tightening the mounting screws, compress the gasket approximately 50%, or whatever the insulation used allows. If the insulation is thicker than ¼" (6 mm) then cut it the size of the enclosure and mount the enclosure on the surface.

### 2.2 Wiring

The Model 5474 with an AC fan incorporates IEC power input modules that accept the standard IEC power cord. The inputs are labeled as follows:

Front:	Heater
Center	Fan
Rear	AC Accessory

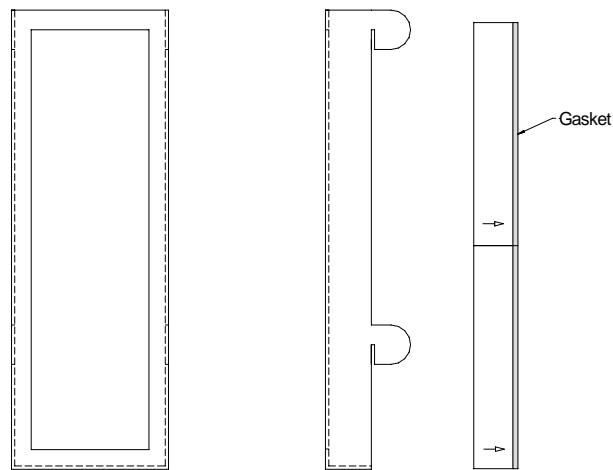
The system is configured at the factory for either 115 VAC/60 Hz or 230 VAC/50 Hz operation. However, the AC Accessory outlet must remain the standard North American type for 230 VAC units. It is suggested that a power strip corresponding to the power plugs

being used be fitted with a North American plug to use the installed AC outlet directly.

If a DC fan is used then the center connector is a 5 mm power module connector.

### 2.3 HEPA Filters

The Model 5474A is available with HEPA filtering over the intake ports located on both sides of the unit. Each side requires 2 filters that are held in place by stainless steel brackets as described in Figure 2.



Install HEPA Filter into Bracket, gasket facing toward mounting tabs.  
Install Bracket onto side(s) of screen. Insert the four (4) tabs into the four (4) slots on the side(s) of the screen. Push in firmly. Pull down firmly to lock bracket into place.

Figure 2: HEPA Filter installation

Replacement filters are available from ETS. Order Part #500-6613.

### **3.0 OPERATION**

The Model 5474/5474A/5474L Integrated Heating System is designed to operate with a temperature controller such as the ETS Models 5100 or 5200 series. The Heater power cord plugs into the control outlet labeled "INCREASE". The Fan power cord plugs into an external outlet.

#### **NOTE**

**The Model 5474/5474A/5474L Heater requires constant air circulation for proper operation. If the fan is turned off and the heater is run at full power it may result in damage to the system.**

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## 4.0 WARRANTY

Electro-Tech Systems, Inc. warrants its equipment, accessories and parts of its manufacture to be and remain free from defects in material and workmanship for a period of one (1) year from date of invoice and will, at the discretion of Seller, either replace or repair without charge, F.O.B. Glenside, similar equipment or a similar part to replace any equipment or part of its manufacture which, within the above stated time, is proved to have been defective at the time it was sold. All equipment claimed defective must be returned properly identified to the Seller (or presented to one of its agents for inspection). This warranty only applies to equipment operated in accordance with Seller's operating instructions.

Seller's warranty with respect to those parts of the equipment which are purchased from other manufacturers shall be subject only to that manufacturer's warranty.

**The Seller's liability hereunder is expressly limited to repairing or replacing any parts of the equipment manufactured by the manufacturer and found to have been defective. The Seller shall not be liable for damage resulting or claimed to result from any cause whatsoever.**

**This warranty becomes null and void should the equipment, or any part thereof, be abused or modified by the customer or if used in any application other than that for which it was intended. This warranty to replace or repair is the only warranty, either expressed or implied or provided by law, and is in lieu of all other warranties and the Seller denies any other promise, guarantee, or warranty with respect to the equipment or accessories and, in particular, as to its or their suitability for the purposes of the buyer or its or their performance, either quantitatively or qualitatively or as to the products which it may produce and the buyer is expected to expressly waive rights to any warranty other than that stated herein.**

ETS must be notified before any equipment is returned for repair. ETS will issue an RMA (Return Material Authorization) number for return of equipment.

Equipment should be shipped prepaid and insured in the original packaging. If the original packaging is not available, the equipment must be packed in a sufficiently large box (or boxes if applicable) of double wall construction with substantial packing around all sides. The RMA number, description of the problem along with the contact name and telephone number must be included in formal paperwork and enclosed with the instrument. Round trip freight and related charges are the owner's responsibility.

### **WARNING**

**WOODEN CRATES MUST NOT BE USED. PACKAGING OF DELICATE INSTRUMENTS IN WOODEN CRATES SUBSTANTIALLY INCREASES THE CONTENT'S SUSCEPTIBILITY TO SHOCK DAMAGE. DO NOT PLACE INSTRUMENTS OR ACCESSORIES INSIDE OTHER INSTRUMENTS OR CHAMBERS. ELECTRO-TECH SYSTEMS, INC. WILL NOT ASSUME RESPONSIBILITY FOR ADDITIONAL COST OF REPAIR DUE TO DAMAGE INCURRED DURING SHIPMENT AS A RESULT OF POOR PACKAGING.**