

# Instruction Manual for Fisher Isotemp<sup>®</sup> Digital Stirrers, Hotplates, and Stirring Hotplates

Voltage	Cat#/Amps Stirring	Cat#/ Amps Heating	Cat#/ Amps Heating/Stirring
120V	11-800-49S/ .57A	11-800-49H/ 7.5A	11-800-49SH/ 7.5A
100V	11-801-49S/ .7A	11-801-49H/ 9.1A	11-801-49SH/ 8.4A
230V CE	11-802-49S/ .27A	11-802-49H/ 4.2A	11-802-49SH/ 4.1A
230V UK	11-802-50S/ .27A	11-802-50H/ 4.2 A	11-802-50SH/ 4.1A
120V P		11-800-49HP/ 7.5A	11-800-49SHP/ 7.5A
100V P		11-801-49HP/ 9.1A	11-801-49SHP/ 8.4A
230V CE P		11-802-49HP/ 4.2A	11-802-49SHP/ 4.1A
230V UK P		11-802-50HP/ 4.2 A	11-802-50SHP/ 4.1A

**P:** Models with external thermal sensor provided.

**CE:** Designates a Continental European plug.

**UK:** Designates a United Kingdom plug.

**100 & 120 volt models operate at 60 hertz, 230 volt models operate at 50 hertz.**

## Introduction:

Your Fisher Isotemp stirrer, hotplate, or stirring hotplate is a general purpose heating and/or stirring device intended for general indoor laboratory procedures. The unit is available as a stirrer, hotplate, or stirring hotplate. (Although the unit is available in three different configurations, the operation of the heat and stir controls remains the same.)

Heat and stir speed are accurately controlled to maintain the set temperature and stirring speed. Heat and stir speed are easily set by simple controls on the front panel. Temperature can be precisely set in 1 degree increments between 30°C (86°F) and 550°C (1022°F). Temperature can be displayed in degrees Centigrade or Fahrenheit. Both set and actual temperature are displayed. During operation and after the heat is turned off, the hot top indicator lights if the top is too hot to touch (>40°C/104°F).

An optional immersion probe allows direct, precise control of the temperature from inside the solution. This chemical-resistant probe can be used to monitor actual solution temperature when stirring temperature-sensitive samples. A standard support rod can be attached to the unit for mounting the temperature probe, as well as a thermometer, electrode, or buret.

Stirrer speed can be set in 1 RPM increments between 60 and 1200 RPM (revolutions per minute). The unit automatically adjusts motor strength to accommodate aqueous, viscous, or semi-solid solutions. Set and actual stir speed are displayed. Included with stirring units is a 5/16-inch diameter by 2 inch long (0.8 x 5.1 cm) Teflon-coated stir bar.


The unit ceramic top plate that measures 7x7 inches. The ceramic top stays flat even at maximum temperature for uniform heating. The ceramic top also resists acids and alkalis, and is easy to clean. Its reflective white surface allows easy visualization of contrasts within the sample. The unit's rugged cast-aluminum base enhances its stability on the bench top. The overall low-profile design makes the unit easy to use in a hood.


**Note:** Use vessels with flat bottoms for the best heat transfer. Avoid metal containers, sandbaths, or vessels with a rim around the bottom as these could damage the ceramic top plate.


## Symbols:

The following symbols are used in these instructions and on the device:

 Indicates that user must read and understand the instructions.

 Indicates that the surfaces may be hot.

 Indicates a shock hazard from dangerous voltage.

 **Safety Information:**

The equipment must be used as described in this manual. If used in a manner other than described in this manual, protection provided by the device may be impaired.

User must completely read, understand, and follow the instructions in this manual before operating this equipment. This equipment is for indoor use only.

Your stirrer, hotplate, or stirring hotplate has been designed with function, reliability, and safety in mind. It is the user's responsibility to install it in conformance with local electrical codes.

 **To Avoid Electrical Shock, always:**

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Disconnect from the power supply prior to maintenance and servicing.

 **To Avoid Personal Injury:**

1. Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.
2. Space unit at least 6 inches away from any combustible materials under all conditions.
3. Use caution when heating volatile materials; top surface and element can reach the flash point temperature of many chemicals. These hot plates and stirring hot plates are not explosion proof. Fire or explosion may result.
4. Keep top surface clean. Use a non-abrasive cleaner. Alkali spills, hydrofluoric acid spills or phosphoric acid spills may damage top and lead to thermal failure. Unplug unit and remove spills promptly. Do not immerse unit for cleaning.
5. Replace the top immediately if damaged by etching, scratching or chipping. A damaged top can break in use.
6. DO NOT USE METAL FOILS OR CONTAINERS, INSULATING MATERIALS (e.g. sand baths), or LOW MELTING POINT GLASS (e.g. soda lime glass) CONTAINERS on hotplate. Ceramic plate can be damaged creating shock hazard.
7. Do not remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard. Not rated for use in hazardous atmospheres.
8. Use appropriate hand and eye protection when handling hot containers and/or hazardous chemicals.
9. Unit should set on a dry surface. Do not set in a puddle of liquid.
10. Refer servicing to qualified personnel.

 **WARNING:**

This product contains refractory fiber, insulation which can produce respirable fibers and dust when unit is disassembled. These fibers or dusts can cause irritation and can aggravate pre-existing respiratory disease. The insulating materials are located in the top plate assembly. There may be a risk of exposure to respirable dusts or fibers when repairing or maintaining the insulating materials in a manner which causes the release of dust or fibers. Refer servicing to qualified personnel.

Qualified personnel should consult the appropriate Material Safety Data Sheets (MSDS's) for such products with respect to proper handling and appropriate protective equipment.

**Note:** This unit contains materials which may emit a slight odor or smoke during initial operation. This will dissipate within an hour and will not affect the operation or performance of the hotplate.

## Environmental Requirements:

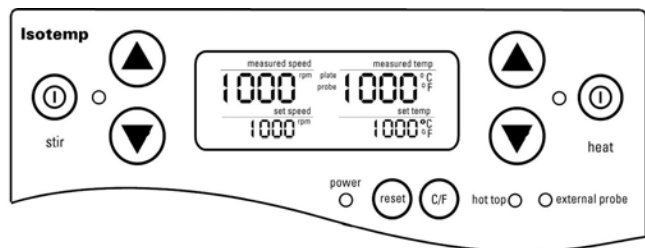
### WARNING:

Do not use in highly corrosive atmospheres; corrosive fumes and spills may damage top and internal components, creating shock hazard.

Ambient Temperature: 10-40°C  
Relative Humidity: 0 to 90% (non-condensing)  
Maximum Altitude: 2000 M  
Pollution Degree: 2  
Over-voltage Category: II  
Main supply voltage fluctuations not to exceed ±10% of rated voltage.

### Packing List:

Each stirrer, hotplate, or stirring hotplate comes complete with an instruction sheet and warranty card. Each stirring unit is supplied with one stir bar.



### Controls and Indicators:

The unit contains the following controls and indicators: (Depending on which unit you have, some of the functions described may not apply to your unit.)

**Power Indicator:** Lights when unit is plugged in and power is being supplied to the unit. There is no separate power switch.

**Reset Key:** Resets set stir speed and temperature to minimum.

**C/F Key:** Sets the indicated temperature in degrees Centigrade or Fahrenheit.

**Hot Top Indicator:** Lights when the temperature of the top surface is above 40°C and is no longer safe to touch. Unit must remain plugged in for indicator to function.

**External Probe Indicator:** Lights when external temperature probe is plugged in.

**Stir Key:** Sets stirring action on or off.

**Stir Up and Down Arrow Keys:** Set stir speed from approximately 60 to 1,200 RPM. Hold the up arrow key to increase the set speed. Hold the down arrow key to decrease the set speed.

**Measured Speed Display:** Shows actual stir speed.

**Set Speed Display:** Shows setting of desired stir speed.

**Heat Key:** Sets heater on or off.

**Heat Up and Down Arrow Keys:** Sets heat level supplied through the top plate. Hold the up arrow key to increase the set temperature. Hold the down arrow key to decrease the set temperature.

**Heat Indicator:** Lights when the heating function in enabled. (Not on stirrer only models.)

**Measured Temp Display:** Shows actual temperature of top plate (or sample when using optional temperature probe).

**Set Temp Display:** Shows setting of desired temperature.

**Plate and Probe Indicators:** Show whether temperature being displayed is being measured at the top plate or through the optional temperature probe. When probe is plugged in, probe temperature is displayed.

Instruction Part # 104612 Rev. B  
Fisher Scientific Co. LLC

## Operation:

Follow this general procedure when operating the stirrer, hotplate, or stirring hotplate.

1. Before using the unit, be sure to read, understand, and follow all safety information contained in these instructions.
2. Using the supplied power cord, plug unit into suitable power outlet. The **power** indicator lights to show that the unit is operational. The unit starts operating at the previous values for stir speed and temperature. To stop the unit from functioning and to return the stir speed and temperature to zero, press the **reset** key.
3. To set the stir speed, press the **stir** key so the stir indicator lights. To increase the stir speed, press and hold the stir up arrow key. To decrease the stir speed, press and hold the stir down arrow key. As you hold either of the arrow keys, the value will start changing gradually, then change more quickly as you continue holding the arrow key. The display shows the **measured speed** and **set speed**. To turn off the stir function, press the **stir** key so the stir indicator goes off.

**Note:** If the stirring bar decouples when boiling liquids, decrease stirring speed to facilitate recoupling.

4. To set the temperature, press the **heat** key so the heat indicator lights. Note that the unit is indicating °C (Centigrade) or °F (Fahrenheit). To change the indication to Centigrade or Fahrenheit, press the **C/F** key. To increase the temperature, press and hold the heat up arrow key. To decrease the temperature, press and hold the heat down arrow key. The display shows the **measured temperature** and **set temperature**. To turn off the heat function, press the **heat** key so the heat indicator goes off.

**Note:**

- When using the internal sensor (not external, optional probe), it will be necessary to set the temperature higher for the sample to achieve the desired temperature. How much more will depend on size, shape, and mass to be heated. The internal sensor measures middle top surface temperature and does not include an offset for a sample of unknown size, shape, and mass. Two examples for explanation purposes: Single 1" x 3" slide set in the center of the top to evaporate liquid will be very close to the correct temperature on the display. A liter of water in a beaker will be off considerably because of the large mass and surface area to dissipate heat.
- To get the fastest heat up times set control to maximum set point. Lower set points will ramp slower to desired temperature. This is true with either sensor (internal sensor or external probe).



### WARNING:

During normal operation of the hotplate or stirring hotplate, the top plate can become hot enough to cause severe burns. Avoid contact. The top surface of the hotplate can remain hot without visual indication for some time after heat is turned off or the power cord is unplugged.

5. To stop the unit from functioning and to return the stir speed and temperature to minimum, press the **reset** key.

Included with stirring units is a stir bar coated with Teflon Fluorocarbon Resin. (Teflon Fluorocarbon Resin is a trademark of E.I. DuPont de Nemours and Company.)

The hotplate/stirrer unit is equipped with a built-in support rod holder located on the back of the unit. It will accommodate rods up to 0.5" (13mm) diameter. Accessories are available from Fisher (in the catalog under the Flexaframe and Castaloy sections) for this unit.

Technical Service: 1-800-926-0505  
Customer Service: 1-800-766-7000

**CAUTION:**

- When turning the controls off, be sure the indicator lights are out.
- Hot surface, avoid contact. The top surface of the hotplate can remain hot for some time after the power is turned off. Refer to the hot top indicator to determine when the top is safe to touch. The hot top indicator will stay lit until the top surface temperature drops below 40°C. Unit must remain plugged in for the hot top indicator to function.
- Gross weight of items placed on top plates should not exceed 40 lbs.

**Using the Temperature Probe:**

The unit can be used with an optional temperature probe for direct, precise control of the sample temperature. Install a support rod on the rear of the housing to suspend the temperature probe into the sample.

**CAUTION:**

- The coating on temperature probe may be damaged at temperatures above 200°C.
  - When attaching accessories to the hotplate/stirrer unit, be careful to avoid the unit becoming unstable and tipping over. Don't attempt to support heavy objects with the support rod.
1. Plug the temperature probe into the connector on the back of the unit. Note that the plug is polarized with one blade larger than the other, so it needs to be inserted correctly.
  2. With the temperature probe plugged in, the **external probe** indicator lights on the front panel. The display also shows **probe** next to the measured temperature. These indicate that the temperature is being controlled directly by the probe rather than the top plate.
  3. Set the temperature as normal by pressing the **heat** key so the heat indicator lights, then use the up and down arrow keys to set the desired temperature.
  4. When finished using the temperature probe, unplug it, clean it, and store in a safe place.

**Specifications for Temperature and Stirring Speeds:**

30°C (86°F) - 550°C (1022°F) (approx.)  
60 -1200 RPM (approx.)

**WARNING:**

To avoid electrical shock, always disconnect from power supply before cleaning and servicing. Refer servicing to qualified personnel.

**Cleaning:**

1. Always unplug unit and allow to cool before cleaning.
2. Clean unit in an upright position to prevent cleaning agents from entering unit.
3. Use a mild, non-abrasive cleaner (such as a damp cloth and soap) to clean all exterior surfaces.
4. Make sure unit is dry before plugging in.

**Troubleshooting:**

If you are having problems using the stirrer, hotplate, or stirring hotplate, follow these general procedures to track down the cause

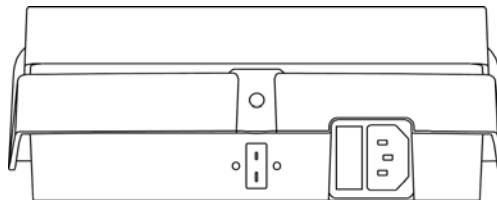
**Problem Possible Solution**

- |          |   |
|----------|---|
| No Power | Unit not plugged into outlet. – Plug in.<br>Incorrect power – Connect to correct voltage<br>Blown Fuse – Replace Fuse |
| No Heat  | Press heat key so that heat indicator lights.   |
| No Stir  | Press stir key so that stir indicator lights.   |

If problems continue contact:

**Technical Service @ 1 800-926-0505**

**Rear Panel Nomenclature:**



**Probe Connector:**

Accepts plug from optional temperature probe.

**Power Entry Module:**

Accepts power cord for providing line power to unit. Also houses power line fuse.

Note: UK Models require fused cord. A larger fuse is contained in the plug body.

**CAUTION:**

- For continued circuit protection, and to avoid a fire hazard, be sure to replace fuses with the same type and rating. If fuse blows repeatedly, contact Technical Service.
- Use only the optional temperature probe designed specifically for the Hotplate/Stirrer.

**Replacing the Fuses:**

If the unit is plugged in and turned on but shows no indication of power, it could mean that the fuse needs to be changed. There are two fuses located in the IEC power line module on the rear of the unit. To replace the fuses, proceed as follows:

1. Turn all control knobs to the OFF position and pull the power cord out of the IEC module.
2. Fit a thin blade screwdriver under the bottom portion of the fuse holder.
3. Using a screw driver, slide the fuse holder out of the IEC module.
4. Replace the bad fuses.
5. Slide the holder firmly back into the IEC module.
6. Reconnect the cord.

**CAUTION:**

Double pole neutral fusing (230V units only).

**Accessories:**

Support Rod (12"L)	14-666-10G
Support Rod (18"L)	14-666-10B
Support Rod (24"L)	14-666-10C
Temperature Probe	11-800-01

**Replacement Part Listings:**

Use only genuine Fisher Scientific parts and accessories designed specifically for your stirrer, hotplate, or stirring hotplate.

Note: Fisher Scientific reserves the right to change product design or specifications without notice or obligation.

Heater, 120V	105160
Heater, 230V	105161
Heater, 100V	105162
Display Board, Stir & Heat	104550
Display Board, Heat	104551
Display Board, Stir	104552
Control Board, Stir & Heat, 120V and 100V	104553
Control Board, Heat, 120V and 100V	104554
Control Board, Stir, 120V and 100V	104555
Control Board, Stir & Heat, 230V	104556
Control Board, Heat, 230V	104557
Control Board, Stir, 230V	104558
Line Cord and NEMA plug, 5-15P, 120V (and 100V)	40521
Line Cord and Continental European plug, 230V	83115
Line Cord and British plug, 230V	83117
Motor, 120V	105163
Motor, 230V	105164
Motor, 100V	105165
Stirring Bar (2 inches)	28476
Top Platen	103933
Thumb Screw	101980
<b>Fuses</b> (See size label on unit	
120 V 7"x7" (1 per unit) 10 Amp	104528
230 V units (2 per unit) 6.3 Amp	88129