OPERATING INSTRUCTIONS

EchoTherm™
SINGLE POSTION STIRRING ANALOG HOT PLATES,
STIRRERS, AND STIRRING HOT PLATES

Document Number HS10-04
Revised 24 April 2013

Torrey Pines Scientific, Inc.
2713 Loker Ave. West
Carlsbad, CA 92010

Telephone: 760-930-9400
Toll Free: 866-573-9104
Fax: 760-930-9480
E-mail: info@torreypinesscientific.com
Web Site: www.torreypinesscientific.com

TABLE OF CONTENTS

GENERAL		PAGE
I.	Introduction	3
II.	Warranty	3
III.	Return of Items	3
IV.	Labels and Symbols	3
V.	Cautions	4, 5
VI.	Set Up Parameters and Instructions	5
VII.	Controls and Indicator Lamps	6, 7
VIII.	Cleaning and Maintenance and Spare Parts	7, 8

I. Introduction

Congratulations on your purchase of a Torrey Pines Scientific HS1, HS10, HS11, HP1, HP10, HP11or ST1, ST10, ST11 Series unit. They are easy to use and to maintain. Please read the instructions to insure that you receive the maximum benefit from it.

II. Warranty

Torrey Pines Scientific warrants this unit to be free from defects in material and workmanship for a period of one year from the date of purchase. If repair or adjustment is necessary within the one year period, and has not been the result of abuse or misuse, please return the unit, freight prepaid, to us or the dealer from whom you purchased the unit, and correction will be made without charge. Out of warranty products will be repaired on a charge basis. ***Be sure to go to our web site and register your purchase. A free T-shirt will be sent to you if you do.***

III. Return of Items

Authorization must be obtained before returning items for any reason. When applying for authorization, include the reason the item is to be returned. Items must be carefully packed to prevent damage in shipment and insured against possible damage or loss. Torrey Pines Scientific is not liable for damage resulting from careless or insufficient packing. A 15% restocking charge will be made on all unauthorized returns.

IV. Labels and Symbols

There are various labels on the body of these units. Listed below are the labels and their meanings.

This symbol means: **Attention. The instruction manual is to be consulted for further information.** ***Attention. Lire ce manuel pour des informations complémentaries.***

This symbol means: **Warning. Hot surface.** ***Attention. Surface chaude.***

This symbol means: **Ground or earth connections.** ***Connexion á la terre.***

V. Cautions

Heater Plate Surface

The HS1, HS10, HS11, HP1, HP10 and HP11 units can heat to temperatures in excess of 500C at the plate surface. Touching the heated surface will cause severe burns. **USE EXTREME CAUTION AT ALL TIMES.** Never leave your hot plate accessible to others when hot. Never touch the heater surface unless absolutely certain that it is cool.
NOTE: DO NOT INSTALL THIS UNIT CLOSER THAN SIX (6) INCHES (15.24 CM) TO A WALL OF COMBUSTIBLE MATERIAL. THIS UNIT IS NOT FOR USE WITH FLAMMABLE LIQUIDS. ***NE PAS INSTALLER Á MOINS DE 152 mm (6 PO) D'UNE PAROI EN MATÉRIAU COMBUSTIBLE.***

Some units have ceramic glass heater tops. They are very rugged, but they can be broken if heavy objects are dropped on them. **Note: Ceramic tops heat quickly but not evenly across the surface. For even heating across the heater surface use an aluminum heater top, especially when heating multiple vessels on the heater top.**

Stirrer

The stirrers are capable of stirring solutions well beyond 1500 rpm. Stirring a sample too rapidly can cause solutions to splash out of a vessel onto surfaces around the unit or the user. Stirring too rapidly can cause the stir bar to break loose from the stirrer magnet and rattle around the vessel causing the vessel to walk off the heater plate surface and to spill the solution. The stirrer controls are open-loop. That means that there is no feedback circuit to maintain a constant stirring speed. As solutions heat, they often become less viscous causing the stirrer to run more rapidly. **Always check the stirrer to be sure it is set at the speed you require to mix a solution safely**.

Electrical

These units are made in models that operate at 115VAC, and 230 VAC ± 10%. Be certain that the input voltage matches the unit. Check the voltage on the bottom label of the unit. Be certain to use a three-wire, properly grounded AC input. Take the normal care and precautions one would use with any electrical appliance. Be careful to keep the AC cord away from the heater plate surface. **Use a line cord of the same type and rating as the one supplied with the unit. They are rated 6, 8 or 15 amps, 125 volts for ceramic topped 115 VAC units, and 3, 4 or 8 amps, 250 volts for 230 VAC units.** ***Bien véritier que le cordon utilisé est du meme type que celui livré avec l'unité. Note: tous les fusibles sont à action rapide. Lis sont à 6, 8 or 15 A et 125 volts pour les unités á surface céramique de 115 volts et de 3, 4 or 8 A pour les unité de 250 et 230 volts.***

The unit is fused. The fuse is in a drawer in the AC power module on the rear of the unit. If the unit will not heat or stir, the fuse may be open. The fuse can be checked by removing the AC line cord from the AC power input module, and removing the fuse drawer from its holder. To remove the drawer, use a small, straight screw driver and pry open the drawer. Note how it comes out so that it may be replaced easily. Replace with fuses of the same value as installed by the manufacturer. **Caution. If fuses blow repeatedly, contact your dealer or the manufacturer.** ***Attention. Si les fusibles sautent de manière répétitive, contacter votre distributeur habituel ou le fabricant.***

VI. Set-Up Parameters and Instructions

Note: The IPX (Index of Protection) rating for this unit is 0 as specified by the manufacturer.

Set Up Parameters

1. Ambient operating temperature range is from 5C to 40C.

2. Maximum altitude of operation should not exceed 2000 meters.

3. Maximum ambient operating relative humidity should not exceed 80% at 31C decreasing linearly to 50% relative humidity at 40C.

Set Up Instructions

1. Place the unit on a level, dry bench or surface.

2. Plug the unit into a properly grounded, three-wire outlet of proper voltage.

3. The heater and stirrer are powered separately through their individual controls.

Note: Do not use this equipment in any manner not specified by the manufacturer. ***Note: Ne pas utiliser cet équipement si vous ne pouves pas respecter les conditions d'utilisation spécifiées par le fabricant.***

Environmental Information

1. This unit is for installation category II.

2. This unit is rated pollution degree 2.

3. For pollution category for decommissioning, check local code requirements.

VII. Controls and Indicator Lamps

The large stirring hot plates Models HS11 (shown above) and stirrers Models ST11 have an ON/OFF toggle switch on the rear for turning on main input power.

Heater Control and Indicator Lamp (HS1, HS10, HS11 and HP1, HP10, and HP11 Models Only)

The heater control is tied to the indicator lamp next to it. When the control is activated, the lamp will illuminate. The control itself has an OFF position and two quick set detent positions: HI and LO. Between high and low there is about 270º of rotation around the bottom of the dial that is infinite, and smooth, and without detents.

The low setting will heat the plate surface to about 100ºC. The high setting will heat the plate surface to about 500ºC depending upon your local input line voltage. Any setting in between is attainable by turning the dial between LO and HI about the bottom axis of the dial.

Stirrer Control and Indicator Lamp (HS1, HS10, HS11 and ST1, ST10 and ST11 Models Only)

The stirrer control is tied to the indicator lamp next to it. When the control is activated, the lamp will illuminate. The control has an OFF setting at the top of the dial. When turning the dial clockwise the off detent will click and the control will be active. As the control is turned clockwise, the stirrer will increase in speed.

Note: The stirrer has a dead zone for about the first 90º to 180º of rotation. The stirrer will not start to run in this zone. This is because the stirrer motor will start to run more freely and faster as it warms up. Leaving this dead zone allows the user to turn-down the speed of the stirrer as the stirrer motor warms-up. Be certain to observe the stirrer for a while after the initial setting to avoid having the stirrer motor run too rapidly.

VIII. Cleaning and Maintenance

This unit is subject to splashes and spills. Be sure to clean all spills quickly to prevent damage. Wipe spills with a soft cloth or paper towel. If a cleaning solution is necessary, use a mild soap or detergent solution and a soft cloth. **Be sure not to use solvents. They could damage the paint and labels.**

When cleaning the glass heater top a slightly abrasive cleaner can be used with a paper towel or soft cloth.

CAUTION: DO NOT ATTEMPT TO CLEAN THE HEATER SURFACE WHEN IT IS HOT. BURNS COULD OCCUR.

PRÉCAUTION D'EMPLOI: NE PAS NETTOYER LA SURFACE DE LA PLAQUE LORQU'ELLE EST CHAUDE POUR ÉVITER TOUTE BRÛLURE ACCIDENTELLE.

Maintenance

There is no preventative maintenance required on these units other than to keep them clean. All components are solid state and will work until they fail. If they fail, they can be replaced easily. A simple inspection should be done whenever the unit is to be used. This simple inspection should include:

1. Checking that the AC cord is not frayed or burned.
2. Checking that the unit is not dirty to a point where proper performance is impaired.
3. Be certain to store the unit properly, when not in use, in an area that will not have items placed on top of the unit, and covered in a way that will keep dirt and other foreign bodies out of the unit.

Spare and Consumable Parts

There are very few spare or consumable parts necessary. A simple list is below.

Part Number	Description
730-0001	Power Cord, US, 10 amp. (all but HP11 and HS11)
730-0006	Power Cord, US, 13 amp. (for HP11 and HS11)
730-0007	Power Cord, US, 15 amp. (for HS15 and HS19)
730-0003	Power Cord, UK
730-0004	Power Cord, Italian
730-0005	Power Cord, Australian/China
730-0009	Power Cord, India/South Africa
380-0007	Fuse, 6 amp, 125 volt
380-0003	Fuse, 8 amp, 125 volt
380-0012	Fuse, 15 amp, 250 volt
380-0006	Fuse, 3 amp, 250 volt
380-0005	Fuse, 4 amp, 250 volt
380-0011	Fuse, 8 amp, 250 volt

IX. ADDITIONAL SYMBOLS

The following are additional symbols found on the labels of the instrument.

Symbol	Description
V	Voltage
~	Alternating Current
A	Current
Hz	Frequency
W	Power
F	Fast Acting Fuse