

DIGITAL PROGRAMMABLE HOTPLATES AND STIRRING HOTPLATES



ECHOtherm™ MODEL HS40 **Fully Programmable Digital Stirring Hot Plates**

Model HS40 Features:

- 10-program memory stored in CMOS. No batteries.
- Each program can be 10 steps, where 1 step is a temperature, stirring speed, time, and heating rate.
- Repeat any program 1 to 98 times automatically. Infinite repeats settable, too.
- Programmable and non-programmable operation.
- Platinum RTD temperature measurement for $\pm 1\%$ accuracy.
- Solid ceramic heater top for quick heating on a flat, white, chemically resistant surface.
- Temperature ramping for exact heating and cooling rates.
- PID temperature control to 1°C on plate surface or solution with accessory probe.
- Stir up to 4 liters of aqueous solutions from 100 to 1500 rpm.
- Timer to 99 hours, 59 minutes, 59 seconds with user settable Auto-off.
- Electronic calibration stored in CMOS.
- RS232 interface for control or recording data via a computer.
- Custom display of all parameters all the time.
- 12-month warranty.
- UL, CSA and CE compliant

Product Description:

Torrey Pines Scientific EchoTherm programmable digital stirring hot plates are the most advanced and easy to use units available. In manual operation, simply select the parameter to be set and scroll the UP or DOWN ARROW to the value needed. The unit will do the rest. In the programmable mode, routines can be stored for instant recall and use. Run any program by touching RUN, selecting the program number using the UP and DOWN ARROW, and ENTER. The routine stored will run automatically, without attention, and exactly the same time after time.

Programs can be simple or complex depending upon the need. Multiple temperatures, temperature ramp rates, stirring speeds and timed events can be stored. When run, the unit monitors the program to be sure it runs exactly as written. SET IT AND FORGET IT.

The units use a 100 ohm platinum system to measure temperature. There is a sensor built into the heater

plate that is used with the heater plate control loop software to control the heater plate temperature. When using an accessory temperature probe, sample temperature of a solution can be set and controlled directly using the temperature probe control loop. Four temperature probes are available. Two stainless steel probes, one 6" and one 10" in length, are the most commonly used. For aggressive chemicals, solid Teflon and borosilicate glass are available in 6" lengths. The glass probe should be used for aggressive chemicals at solution temperatures above 260°C. Calibration for both plate and probe sensors is done at the factory and stored in CMOS. The units are provided with certificates of calibration traceable to NIST. Calibration also can be done by the user, using local standards, by following the instructions in the user's manual.

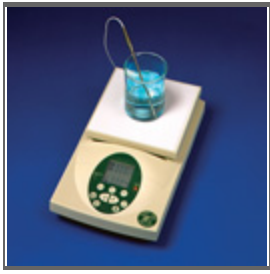
The heater top is solid ceramic glass that is flat, white, and impervious to most chemicals. The ceramic glass plate is held in a cast aluminum frame. Unlike other ceramic glass tops, it has no folded edges that can cause built-in stresses that can cause the tops to crack. It is excellent for working with solutions in a beaker. The ceramic top will heat to 450°C in about 2 minutes.

The chassis is cast aluminum designed to keep spills and heat from the electronics, and it is coated with chemically resistant epoxy paint. The membrane switch and display are covered by a replaceable clear, soft, vinyl cover designed to keep off dirt and spills. All units come with a six-foot long, three wire, grounded, detachable AC line cord, fuse holder, main ON-OFF switch and instruction manual.

Product Specification:

Programming:	
Memory capacity	10 programs
Individual Program Capacity	10 steps
Repeat a program automatically	1 to 98 times or infinitely
Temperature Measurement:	
Platinum RTD, 100 ohm at zero, in plate and probe Range	0 to 450°C
Readability	1°C
Hot Plate:	
Dimensions	8" (20.3 cm) x 8" (20.3 cm)
Maximum plate temperature	450°C
Temperature control type	PID
Temperature accuracy	1% ±
Temp stability	1°C
Heater power in watts	600W
Stirrer:	
Speed range unloaded	100 to 1500 rpm
Readability	1 rpm

Settability	nearest 10 rpm
Electrical:	
Available in	100, 115, & 230VAC, 50/60 Hz, 600 W
Fused	both high and neutral lines
Line cord	Detachable, 6-foot (1.8 meter), three- wire grounded
Dimensions:	
Dimensions unpacked	
Width	9.125" (23.18 cm)
Depth	15.75" (40.01)
Height	4.75" (12.07 cm)
Dimensions packed	
Length	18.25" (46.36 cm)
Height	9.5" (24.13 cm)
Width	12.25" (31.12 cm)
Weight, unpacked	12 pounds (5.4 kg)
Weight packed for shipment	14 pounds (6.3 kg)
Accessories Available:	
HS30-550 RS232, Factory installed	
HS30-600 Probe, Immersion, 6" stainless steel	
HS30-601 Probe, Immersion, 10" stainless steel	
HS30-602 Probe, Immersion, 6" solid Teflon	
HS30-603 Probe, Immersion, 6" solid glass	
HS30-700 Temperature Probe Calibration Kit	



ECHOtherm™ Digital Hot Plates and Hot Plate/Stirrers Models HP30 and HS30

Heat, Stir, and Time Accurately with the Most Easy to Use, Fully Featured Hot Plates Available Anywhere.

EchoTherm Hot Plate/Stirrers Give the User:

- Extremely easy use by anyone in your lab
- Platinum RTD temperature measurement for precision and accuracy
- Solid ceramic heater top for quick heating on a flat, white, chemically resistant surface. Milled flat cast aluminum top available on hot plate only model
- Cast aluminum framed ceramic heater top edges stay cooler to prevent burns
- PID temperature control for exact, tight sample control of plate or solution
- Timer to 99 hours, 59 minutes, 59 seconds with settable Auto-Off for exactly timed sample preparation
- Electronic calibration stored in chip. No batteries to replace. User calibratable
- Temperature ramping for exact heating and cooling rates
- Strong motor and magnet for stirring most samples
- Full featured digital display for checking all parameters instantly
- High and neutral lines fused for safety
- UL, CSA, and CE certified

Product Description:

The EchoTherm HP30 and HS30 are products of years of experience in design, manufacturing, and marketing of digital hot plates and stirring hot plates. That experience was focused into the design of these units with the goal of making them the easiest to use and most accurate fully featured hot plates and stirring hot plates in the world. They are so simple to use it is surprising. Temperature measurement of a solution is accurate to 1% over the entire temperature range using a 100-ohm platinum RTD sensor and measurement system. Calibration of temperature is electronic and stored in memory. Calibration is set at the factory but can be done easily in the field using the probe calibration kit offered as an accessory.

Heater tops are ceramic glass for all stirring hot plates and ceramic glass or milled flat cast aluminum for the hot plate only. The ceramic glass tops are a brilliant white flat glass set in a cast aluminum frame that are easy to clean and impervious to chemical spills. The ceramic glass is different than the cast plate with curved sides used by other manufacturers. These cast tops may have stress in them from the molding process and have been known to fracture when heated or put under stress by their mounting clips. The flat glass top of the Torrey Pines Scientific units eliminates this stress. Mounting them in a cast aluminum frame gives the additional advantage of a cool edge to the heating surface to help prevent accidental burns. The glass tops have efficient 600-watt heaters that can raise the plate surface temperature to 450°C in just a couple of minutes. The cast aluminum tops are flat to within 0.01 inches corner to corner and have 740-watt heaters that can raise the plate surface to 400°C in under ten minutes.

The chassis on both models is cast aluminum designed to keep spills and heat out of the electronics. They are coated with chemically resistant epoxy based paint for durability. The membrane switch and display areas are covered with a replaceable, clear, soft vinyl cover to help keep spills off them. All units come complete with a six-foot long, three wire grounded, detachable line cord, fuse holder, and main ON-OFF switch. Both high and neutral lines are fused for safety.

Product Specification:

Hot Plate:	
Dimensions	8" (20.3 cm) x 8" (20.3 cm)
Maximum temperature of the plate surface	ceramic top: 450°C; cast aluminum top: 400°C
Temperature control type	PID
Temperature accuracy	1%
Temperature regulation, solution or plate	±1°C
Heater power in watts	ceramic top: 600W; aluminum top: 740W
Temperature Measurement:	
Platinum RTD	100 ohm, in plate and in probe
Range	ceramic top: 0-450°C; aluminum top: 0-400°C
Readability	1 °C
Stirrer:	
Speed range unloaded	100 to 1500 rpm
Readability	10 rpm
Settability	nearest 10 rpm
Electrical:	
Available in	100, 115, and 230VAC, 50/60Hz
Ceramic top	100 and 115VAC, 8 amp; 230VAC, 4 amp
Aluminum top	100 and 115VAC, 10 amp; 230VAC, 5 amp
Fusing	Both high and neutral lines fused
Line cord	Detachable, 6 foot (1.8 meter), three-wire, grounded
General:	
Dimensions, unpacked:	
Ceramic top	9.125" (23.18cm) side to side, 15.75" (40.01cm) front to back, 4.75" (12.07cm) high
Aluminum top	9.125" (23.18cm) side to side, 15.75" (40.01cm) front to back, 5.00" (12.7cm) high
Dimensions, packed	

Ceramic and aluminum tops 12.25" (31.12cm) by 18.25" (46.36cm) by 9.5" (24.13cm)

Weight, unpacked

Ceramic top 12 pounds (5.4kg)

Aluminum top 13 pounds (5.9kg)

Weight, packed

Ceramic top 14 pounds (6.3kg)

Aluminum top 15 pounds (6.8kg)

Accessories Available:

HS30-550 RS232, Factory installed

HS30-600 Probe, Immersion, 6" stainless steel

HS30-601 Probe, Immersion, 10" stainless steel

HS30-602 Probe, Immersion, 6" solid Teflon

HS30-603 Probe, Immersion, 6" solid glass

HS30-700 Temperature Probe Calibration Kit