

## INCUBATORS



### **ECHOtherm™ Model IN20, CHILLING/HEATING INCUBATOR**

Chill or heat from 10.0 C to 50.0 C --- EVEN AT AMBIENT --- 12 assay plates or a mix of 0.2 ml, 0.5 ml, and 1.5 ml centrifuge tubes in the smallest footprint available

#### **INCUBATOR FEATURES:**

- Peltier based. No compressors, no CFC's.
- Energy efficient
- Temperature range from 10.0 C to 50.0 C
- Holds 12 assay plates
- 6 shelves provided with holes for 192 - 0.2 ml tubes in 8 or 12 tube strips, 80 - 0.5 ml tubes, and 60 - 1.5 ml tubes
- Rack for holding shelves for sample loading
- Timer with user settable auto-off
- Electronic calibration. Factory set, but user settable to any local standard
- Built-in data logger with 8110 data points
- RS232 interface for control or data logging
- Electronic calibration, user settable to local standards
- 12 volt DC operation. UL, CSA, and CE approved
- 12-month warranty

#### **Some Applications:**

- Culture growth above, below, or at ambient
- Protein crystal growth
- Enzyme reactions and deactivations
- Incubating marine cultures below ambient
- Ligations at 14.0 C to 16.0 C
- Hybridizations
- Storing oocytes at 17.0 C
- Storing DNA libraries

#### **Product Description:**

Torrey Pines Scientific Model IN20 is a completely solid state convection chilling/heating incubator for bench top use or use in the field. It is reliable, accurate, compact, and easy to use. The unit is Peltier based for both heating and chilling and has no compressor or CFC's, making it truly energy efficient. The unit is all plastic and translucent for easy sample viewing. The compact design utilizes very little bench space. A convection fan in the unit circulates the air to assure uniform temperature throughout. It measures 8" (20.3 cm) wide by 14" (35.6 cm) deep, and stands 18" (45.7 cm) tall. The unit is run from a manufacturer-supplied table top 12 volt DC power supply that operates at inputs of 90 to 265 volts AC, 50/60 Hz.

The IN20 has simple digital controls and a two line alphanumeric digital display that is backlit for easy reading. The display shows target and actual temperatures and can be used to display the target and actual temperatures and the countdown timer. To set a temperature just push the UP or DOWN ARROW until the display shows the desired target temperature. The unit then will go to that temperature. Calibration is factory set, but calibration is settable by the user to any local standard.

There are POWER and BUFFER lamps on the front panel. The power lamp indicates when the unit is turned on. The buffer lamp flashes when the unit is collecting data. The lamp illuminates constantly when the buffer is full and ready to be downloaded. The buffer can be set to collect data points once a second, once a minute, or once every five minutes to a total of 8110 data points.

The IN20 has an RS232C interface that can be used to record data for monitoring agencies and for controlling the unit via a PC. There is an accessory software package available to set the unit and to plot and print temperature over time.

There are six shelves supplied with each unit. Each shelf will hold two assay plates, even tall form plates, for a total of twelve. In addition, each shelf has a hole pattern on it for centrifuge tubes. Two shelves have 192 holes for 0.2 ml centrifuge tubes aligned to hold PRC tubes in 8- or 12-tube strips. Two shelves have 80 holes for 0.5 ml centrifuge tubes, and two shelves have 60 holes for 1.5 ml centrifuge tubes. All shelves are removable and interchangeable. A stand is provided to hold one shelf when the shelf is removed from the unit to be loaded.

### Product Specification:

Temperature:	
Range	10°C to 50°C
Readability	0.1 °C
Accuracy	± 0.2 °C
Stability	± 0.1 °C
Sensor Type	Solid State IC
Controller Type	PID
Chamber Uniformity	± 0.5 °C
Convection Fan	Yes

Timer:	
Range	00:01 to 30 days
Readability	1 second
Audible Alarm	Yes, sounds for 1 minute. Timer counts up until UP or Down key is touched
Auto-Off	Yes, user settable

Data Logger:	
Sample times	1 sec, 1 min, or 5 minutes per data point
Capability	8110 data points
Electrical:	
Heater/Chiller	Peltier, 50 watts
Operating Voltages	90 to 265 volts AC input to universal power supply. 12 volt DC output supplied to the incubator
Power Consumption	50 watts at 12 volts DC
Power Switch	Yes, for 12 volt DC into the incubator



### ECHOtherm™ IN30 and IN40 SERIES BENCH TOP, CHILLING/HEATING INCUBATORS WITH FULLY PROGRAMMABLE OR NON-PROGRAMMABLE CONTROLS

Chill or Heat from 4.0 C to 70.0 C in 27.5 Liter or 55 Liter Volume Units with Precise Control— Even at Ambient

#### Incubator Features

- Peltier based. No compressors, no CFC's. Energy efficient.
- Temperature range from 4.0 C to 70.0 C
- FULLY PROGRAMMABLE or non-programmable controls
- 27.5 or 55 liter volumes
- Timer with alarm and auto-off
- Electronic calibration and power failure protection
- RS232 interface
- 12 month warranty
- UL, CSA, and CE listed

#### Some Applications

- Protein crystal growth
- BOD'S
- Culture growth above, below or at ambient
- Enzyme reactions and deactivations
- Incubating marine cultures below ambient
- Ligations at 14.0 C to 16.0 C
- Hybridizations
- Storing Oocytes at 17.0 C
- Storing DNA libraries

## Product Description:

Torrey Pines Scientific offers completely solid state convection chilling/heating incubators for bench top use that are reliable, accurate, and easy to use. Being Peltier based for both heating and chilling, the units have no compressors or CFC's making the units truly energy efficient. The IN30 Series has 27.5 liter volume, and the IN40 Series has 55 liter volume.

The models IN30 and IN40 are not programmable. The models IN35 and IN45 are fully programmable. The IN30 and IN40 have a 5/8" liquid crystal display that reads temperature to 0.1 C. The display can be changed from temperature to timer by a single key stroke. The timer reads in hours, minutes and seconds. When the timer counts down to zero it sounds an audible alarm. The timer is settable to 100 hours maximum. In addition, timers have a user settable Auto-Off which turns the heater/chiller off at zero time. The keyboard is tactile touch with audible feedback and has UP Arrow, DOWN Arrow, TEMP, TIMER and AUTO-OFF keys.

The models IN35 and IN45 are fully programmable by the user through the keyboard. The units can store three routines in memory for instant recall and use at any time. Each program has ten steps where each step is a temperature target, temperature ramp (if desired), and a run time. Steps can be set for running multiple "ramp and soak" cycles, or for just running at one temperature for a given time and then switching automatically to another temperature for another given time. At the end of each step is a "cycle" step which can be set to repeat the prior steps one to nine times. The IN35 and IN45 also can be used in the non-programmable mode as a normal incubator.

The display on the IN35 and IN45 is a two-line alphanumeric type with sixteen characters per line. The display shows target temperature and actual temperature to 0.1 C, ramp rate in C/hour, and timer in days, hours, minutes, and seconds to 99 days maximum.

All models have several safety features such as a watchdog circuit to monitor the microprocessor, and power interrupt protection that resets the units to what they were doing before power failed after power returns.

The chamber of the IN30 and IN35 is 12" high by 10" deep by 14" side to side. The units are supplied with two racks adjustable to four different levels. The chamber of the IN40 and IN45 are 24" high by 10" deep by 14" side to side. These units are supplied with four racks adjustable to six different levels. The racks are electropolished steel. The chambers on all units are seamless, molded white ABS plastic, and very easy to clean. All units have an inner and outer door. The inner door is clear plastic for sample viewing while minimally upsetting the chamber temperature.

All units have a painted aluminum chassis with plastic front panel and door. They come complete with three-wire grounded, detachable AC line cord, racks, and instruction manual. The high and neutral lines are fused and switched for safety. They are all available in 100, 115, and 230VAC, 50/60 Hz versions.

## Product Specification:

Temperature (all units):	
Range	4.0° to 70.0°C
Readability	0.1°C

Accuracy	± 0.2 C			
Stability	± 0.1 C			
Sensor Type	Solid State IC			
Controller Type	PID			
Chamber Uniformity	± 0.5 C			
Convection Fan	Yes			
<b>Timer:</b>				
	IN30 / IN40		IN35 / IN45	
Range	99 hours		99 days	
Readability	1 second		1 second	
Audible Alarm	Yes		Yes	
Auto-Off	Yes		Yes	
<b>Electrical:</b>				
Heater/Chiller	Peltier, 100 watts			
Power Consumption	230 Watts AC			
Electrical	100VAC, 50/60Hz, 2.0 Amp 115VAC, 50/60Hz, 2.0 Amp 230VAC, 50/60Hz, 1.0 Amp			
AC Switched and Fused	Yes, High and Neutral			
AC Line Cord	Detachable, 3-wire, 7-foot			
<b>Dimensions:</b>				
	IN30/IN35		IN40 / IN45	
Height, overall	15.5" (39.4 cm)		28.25" (71.75 cm)	
Width, overall	22.25" (56.5 cm)		22.25" (56.5 cm)	
Depth, overall	18.5" (47 cm)		18.5" (47 cm)	
Height, chamber	12" (30.5 cm)		24" (61 cm)	
Width, chamber	14" (35.6 cm)		14" (35.6 cm)	
Depth, chamber	10" (25.4 cm)		10" (25.4 cm)	
Weight:	IN30	IN35	IN40	IN45
Net Weight	45 lbs., (20.4kg)	45 lbs., (20.4kg)	60 lbs., (27.2kg)	60 lbs., (27.2kg)
<b>Accessories Available:</b>				
Replacement Racks for EchoTherm™ Chilling Incubator, Digital, Bench Top, Models IN30, IN35, IN40, and IN45 (all voltages).				

**Dimensions:**

**Incubator (overall)**

Width	8" (20.3 cm)
Depth	14" (20.6 cm)
Height	18" (45.7 cm)

**Chamber Size**

Width	6" (15.2 cm)
Depth	8" (20.3 cm)
Height	12.5" (31.8 cm)

**Power Supply**

Length	6.5" (16.5 cm)
Height	3.2" (8.1 cm)
Width	2.2" (5.6 cm)
Weight, total unit	18 lbs. (8.2 Kg)

**Accessories Available:**

IN20-700 Loading holder for shelves, green

IN20-701 Holder for shelves, blue

720-0022 IN20 Replacement Shelf, 0.2 ml tubes

720-0023 IN20 Replacement Shelf, 0.5 ml tubes

720-0024 IN20 Replacement Shelf, 1.5 ml tubes