Space-saving Innova 44 Series Shakers can be stacked up to three units high, providing three times the culture capacity in about the same space normally occupied by a single shaker. A programmable controller provides unmatched convenience and reproducible results by letting you create programs to automate changes to operating parameters. Innova 44 provides incubation, while Innova Model 44R adds refrigeration.

- **Intuitive Programming** allows multiple parameter changes to temperature, speed, photosynthetic lights* and UV light decontamination* on a timed basis. Ideal for heat inductions as well as temperature reductions to slow growth, eliminating unnecessary trips back to the lab. (* Optional accessories.)

- **Expanded Temperature Range Eliminates Need to Order a More Expensive High-Temperature Model.**
  Innova 44: 5°C above ambient to 80°C.
  Innova 44R: 20°C below ambient to 80°C, min. 4°C.

- **Agitation:** 25 to 400 rpm with 1" (2.54 cm) orbit and to 300 rpm with 2" (5.1 cm) orbit; ±1 rpm.

- **Space-Saving Door** glides up and out of your way.

- **Slide-Out Platform** provides easy access to all samples.

- **Double-Pane, Thermal Glass** provides excellent insulation and clear observation of cultures.

- **Extra-Large Chamber** holds flasks up to 5 liters.

- **Interior Chamber Light** enhances observation.

- **Multi-Function Reservoir** humidifies chamber to reduce sample evaporation and protect unit from spills. Built-in drain facilitates cleanup.

- **Superior Air Circulation System Provides Rapid Temperature Equilibration & Excellent Uniformity** using low watt-density, resistance heaters.

- **Heavy-Duty Door Gasket** maintains a leak-free seal and ensures excellent temperature uniformity.

- **RS-232 Computer Interface** allows remote data logging and control using standard lab management software.

- **Pull-Out Service Module** allows convenient access to all electronic and heating/cooling components without the need to unstack units.
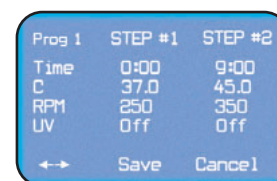

Stackable Innova 44 Series Shakers accommodate up to 5 liter flasks on interchangeable 30" x 18" (76 x 46 cm) accessory platforms. As shown, two shakers on a medium base.

Options

- **Orbit:** 1″ (2.54 cm) or 2″ (5.1 cm) diameter orbits.

- **Humidity Probe** monitors humidity levels.

- **12-Port Gassing Manifold** permits direct gassing into flasks or other vessels.

- **Ultraviolet Germicidal Light** in the airflow path outside the chamber reduces the bio-burden of circulated air. Innova 44R only.

- **Programmable Photosynthetic Light Bank:** Innova 44R only.

- **Remote Alarm Output** provides communication to external user-supplied building alarm/monitor system.

- **Validation Packages Available.**

Large, easy-to-read display screen clearly shows operating parameters and actual value. Displayed parameters can be selected by user. A single knob selects all operating conditions easily and quickly. Screen size: 5″ x 2¾″ (12.7 x 6.98 cm).

Programmable controller automates parameter changes on a timed basis. Holds up to 4 programs, 15 steps each. Can eliminate unnecessary return trips to the lab, automates heat inductions and more.

Specifications *		Innova 44	Innova 44R
Temperature	Range †	Ambient +5°C to 80°C	Ambient -20°C to 80°C. Min. setpoint 4°C
	Accuracy & Control	± 0.1°C at 37°C with a nominal uniformity of ± 0.25°C	
	Refrigeration	Innova 44R only. Hermetically-sealed compressor uses CFC-free refrigerant	
	Heaters	Low watt-density, resistance heaters with high-temperature safety thermostat cut-out	
Shaking	Range §	25 to 400 rpm with 1" (2.54 cm) orbit 25 to 300 rpm with 2" (5.1 cm) orbit or with any 2 stacked units 25 to 250 rpm with 3 stacked units	
	Control	± 1 rpm	
	Drive Mechanism	Triple-eccentric counterbalanced drive in cast iron housing with 9 permanently lubricated ball bearings. Driven by solid-state brushless DC motor	
Timer and Parameter Control	4 Modes	➢ Speed and temperature continuous ➢ Shaker can be set to run from 0.1 to 99.9 hours ➢ On-board firmware can program multiple parameter changes to temperature and speed. On 44R can program optional photosynthetic lighting and UV decontamination ➢ Shaker control and data logging via RS-232 and remote computer running conventional laboratory management software or HyperTerminal	
Alarms	Audible & Visible	Indicate when speed deviates more than 5 rpm or temperature more than 1°C from setpoint, and when program or time has finished. Alarm may be muted	
Safety	Mechanical and electronic	Sensors limit speed of shaker when unbalanced, stops shaker when excess vibration is detected and shuts off temperature when high-temperature limit is exceeded	
Computer Interface	RS-232	For data logging and control using laboratory management software or HyperTerminal	
Setpoint Retention		Setpoints and operating status retained by non-volatile memory. Automatic restart after power is restored (indicated by flashing display)	
Electric	Service	120V 60Hz; 230V 50Hz; 100V 60Hz; 100V 50Hz	
	Power	800 VA	1,400 VA
Dimensions	Platform **	30" Wide x 18" Deep (76 x 46 cm)	
	Chamber	36" Wide x 26" Deep (91 x 66 cm). 18" (46 cm) high from top of platform	
	Overall	**Single unit** **Two stacked**	**Three stacked**
	Wide	53" (135 cm) 53" (135 cm)	53" (135 cm)
	Deep	33" (84 cm) 33" (84 cm)	33" (84 cm)
	High	26" (66 cm) 52" (132 cm)	78" (198 cm)
Weight	Net	525 lbs (238 kg).	570 lbs (259 kg)
Ambient Conditions		10°C to 35°C. 20 to 80% RH (non-condensing)	
Service		All mechanical and electronic components are easily accessed from the front of the machine	
Certification		⊂Ⅎℒus Meets CSA, UL & CE standards	
Warranty		Comprehensive warranty – two years on labor, three years on parts	

* Specifications subject to change without notice. † Max. temperature is ambient plus 55°C. With optional Humidity Monitor max. temperature is 60°C. In Model 44R, attaining 20°C below ambient depends on RH and other ambient conditions. For 230V 44R, temperature range is 17°C below ambient to 80°C, with a min. setpoint 4°C. § Baffled flasks can significantly reduce maximum speed. ** Platforms sold separately - see platform capacity chart below, and platform ordering info on page 22. Note: Innova 44 and 44R platforms are not interchangeable with platforms from other NBS Shakers. ◊ Door open adds 21" (53 cm) to height of top of unit. Height shown does not include optional base — see below.

Shaker Capacity **

Flask Size	Dedicated Platform	Universal Platform
50 mL	N/A	91
125 mL	60	39
250 mL	40	30
500 mL	24	24
1 L	15	14
2 L	12	8
2.8 L	6	6
4 L	6	6
5 L	N/A	6 ††

** Shaker platforms sold separately. See page 22.
†† Using Sticky Tape – less with clamps. When using Photosynthetic Lighting, maximum flask size is 2L.

Ordering Information **

		Catalog No.	Catalog No.
Innova 44 Shaker	120 V 60 Hz	1" orbit: M1282-0000	2" orbit: M1282-0010
Innova 44 Shaker	100 V 60 Hz	1" orbit: M1282-0001	2" orbit: M1282-0011
Innova 44 Shaker	230 V 50 Hz	1" orbit: M1282-0002	2" orbit: M1282-0012
Innova 44 Shaker	100 V 50 Hz	1" orbit: M1282-0003	2" orbit: M1282-0013
Innova 44R Shaker	120 V 60 Hz	1" orbit: M1282-0004	2" orbit: M1282-0014
Innova 44R Shaker	100 V 60 Hz	1" orbit: M1282-0005	2" orbit: M1282-0015
Innova 44R Shaker	230 V 50 Hz	1" orbit: M1282-0006	2" orbit: M1282-0016
Innova 44R Shaker	100 V 50 Hz	1" orbit: M1282-0007	2" orbit: M1282-0017
Short Base raises shaker by 4" or 10.2 cm		M1282-0600	
Medium Base raises shaker by 12" or 30.5 cm		M1282-0800	
Tall Base raises shaker by 16" or 40.6 cm		M1282-0700	
Stacking Kit, Order 1 kit for 2 units/ 2 kits for 3 units		M1282-0500	
Photosynthetic Light Bank - 44R only, factory installed		M1282-9922	
12-Port Gassing Manifold factory installed		M1282-0291	
Humidity Monitor factory installed		M1282-5011	
UV Germicidal Light - 44R only, factory installed		M1282-9921	
Spare Parts Kit		M1282-6000	