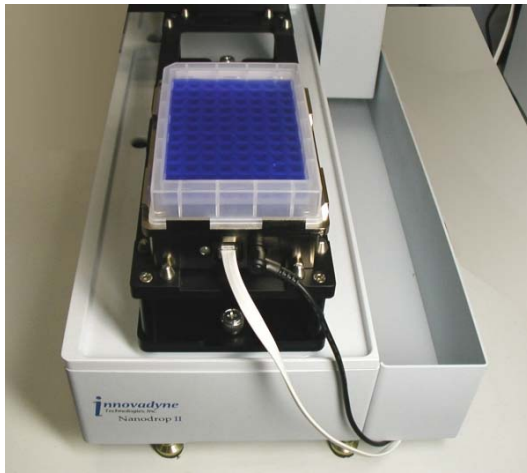


Orbital Plate Shakers



**Model 1 Orbital Shaker
on Nanodrop II Stage**

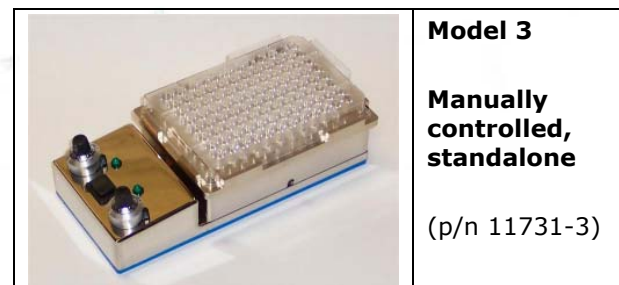
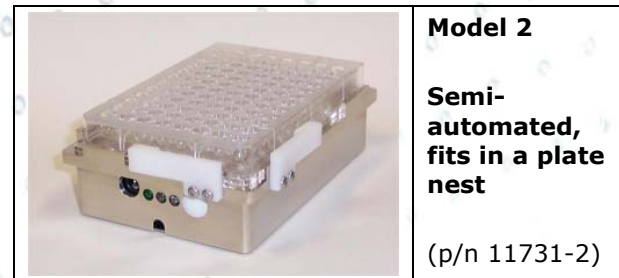
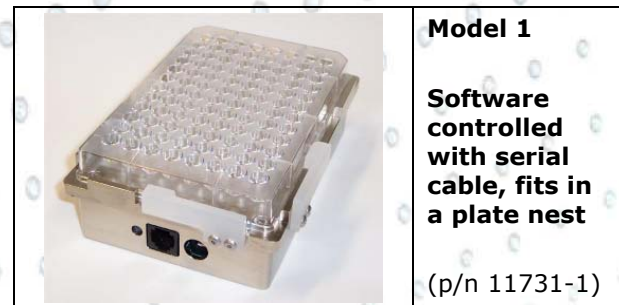
Innovadyne Technologies offers three different models of **Orbital Plate Shaker**, a precision electronic shaker peripheral that provides a tight 1 mm orbital shaking pattern for all SBS footprint plates, reagent trays and micro tube holders. The Model 1 shaker, shown opposite, can be placed on any plate nest on any Innovadyne instrument. It is software-controllable from within Nanobuilder sequences or from a control window, and offers programmable acceleration.

Two other shaker models are available without the software control feature, utilizing 1 or 2 on-off switches or relays and manual potentiometers: the Model 2 shaker, which fits in plate nests, and the Model 3, which is standalone.

All three of the shakers we offer are designed with a velocity range of 60 to 3570 RPM, providing a gentle stirring motion for skin prevention, medium speeds to ensure liquids remain fully mixed and in suspension across all wells, and vortex mixing for micro tubes.

Features

- Microtiter plate footprint for fast mounting and dismounting in any plate position on any Innovadyne instrument (Models 1 and 2 only).
- Self homing -- returns plate to precisely to original position so that tips have same orientation to plate before and after mixing (Model 1 only)
- Solid aluminum construction -- does not allow walking or bouncing
- Spring clips secure microplate -- easy on and off for robots or lab staff.
- Nickel plated for easy cleaning
- Operating temperature range of 0 to 160 degrees F (-17.5° C to 71.0° C)
- RS-232 interface connects to serial port on computer, enabling control from a software window, or automatically from steps in a Nanobuilder© sequence (Model 1 only)
- Cold running motor allows continuous operation, weeks at a time.
- Negligible temperature rise, allowing operation continuously in cold rooms without affecting plate contents
- Tight 1 mm orbital shaking pattern (.5 and 2.0 mm orbital patterns available as options)



Specifications (all models)

Orbital Motion	1.0 mm diameter, circular shape, constant everywhere on well plate. 0.5 and 2.0 mm optional.
Microplate Platform Dimension	3.650" (92.7mm) width, 5.300" (134.6mm) length, centered on top of base. Secures a single 96, 384 or 1536 micro well plate with SBS footprint.
Operating Temperature	0° F to 160° F (-17.5° C to 71.0° C), non-condensing, RH to 90%
Motor	Hi-torque 3-phase brushless DC servo motor and drive electronics with eccentric in precision bearing. Four post vibration isolators. Planar surface motion.
Material	Aluminum, nickel plated, stainless steel hardware, white polypropylene clips.
Warranty	Two year limited replacement warranty.

Specifications (model-specific)

	Model 1	Model 2	Model 3
Software Controllable	Yes	No	No
Fits in Plate Nest	Yes	Yes	No
Speed	60 RPM to 3570 RPM, programmable. Resolution 14 RPM. Acceleration/deceleration in range of 0-10 seconds. 7500 RPM top speed optional.	60 RPM to 3600 RPM, 2 separately adjustable potentiometers for two independent speeds. Speed selectable by user external switches, relay contacts or solid state switches. 7500 RPM top speed optional.	60 RPM to 3600 RPM, 2 separately adjustable potentiometers for two independent speeds. Speed selectable by applying power to terminal 1 versus terminal 2. 7500 RPM top speed optional.
Power Required	24 VDC, 180 mA. 100-240 VAC 50-60Hz power adapter included. DC power receptacle on end of unit.	24 VDC, 225 mA. 100-240VAC 50-60Hz power adapter included. Connected via internal terminal block or supplied power adapter.	24VDC 180 mA; 100-240VAC 50-60 Hz power adapter included
Base Dimension	3.350" (85mm) width, 5.030" (127.8mm) length	3.350" (85mm) width, 5.030" (127.8mm) length	3.350" (85mm) width, 7.290" (185.2mm) length
Indicators	Tricolor LED, green when at commanded velocity, yellow during acceleration or deceleration, red during home finding, on end of unit.	Green LED for power indicator, two blue LEDs indicating Speed A and Speed B activation.	
Height	1.215" (30.9mm) height from bottom of rubber feet to top surface of shaker table platform. 1.775" (45.1mm) height from bottom of rubber feet to the top surface of a standard well plate. 0.995" (25.3mm) from bottom of rubber feet to bottom of shaker platform.	1.215" (30.9mm) height from bottom of rubber feet to top surface of shaker table platform. 1.775" (45.1mm) height from bottom of rubber feet to the top surface of a standard well plate. 0.995" (25.3mm) from bottom of rubber feet to bottom of shaker platform.	1.590" (40.4mm) height from bottom of urethane no-slip surface to top surface of shaker table platform. 2.110" (53.6mm) height from bottom of urethane surface to the top surface of a standard well plate.
Weight	1.48 pounds (671 g)	1.58 pounds (717 g)	2.40 pounds (1.08 kg)
Start-up Time		1.5 seconds to set speed	1.5 seconds to set speed
Mixing Speed		Speed varies based on your liquid viscosity. For 96 well plates water fully mixes in each microplate well at 1300 RPM, 2000 RPM for 384 well plates.	Speed varies based on your liquid viscosity. For 96 well plates water fully mixes in each microplate well at 1300 RPM, 2000 RPM for 384 well plates.
Control	Intel 8752 microcontroller, 8-bit DA converter for speed control. 3-phase brushless servomotor drive, retroreflective optical sensor for shaft position and home index.		
RS-232 Port	9600, 8, 1, no hardware data control. ASCII text characters with <CR> for end of line. RJ-11 connection on end of unit. Standard RJ-11 telephone cable, 6 foot, included. RJ-11 to 9 pin D-type and 25-pin D-type connectors supplied.		
Serialization	Each unit has unique electronic serial #		