

DILUGENT SHAKER

USER´S MANUAL



Diligent Shaker is designed to produce a more efficient and repeatable workflow when making dilutions, in addition to save up to 50% of the time spent in comparison with traditional methods.

The instrument is equipped with two sensors located on the sides which allow its use without physical contact. The 42 LED lights assist the operator during the dilution process by showing which cup is to be processed.

Diligent Shaker is used in combination with Dilucup® invented and manufactured by LabRobot in Sweden.

Parts of Diligent Shaker



Setting-up

- a) Plug in the Diligent Shaker to the power supply (DC 12 V) and check that the main switch, located at the back of the unit, is in position "I". Connect the screen as indicated in the picture below.

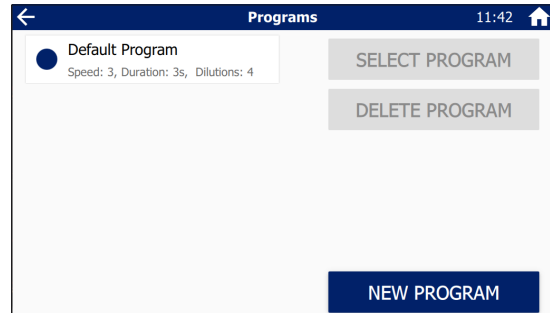
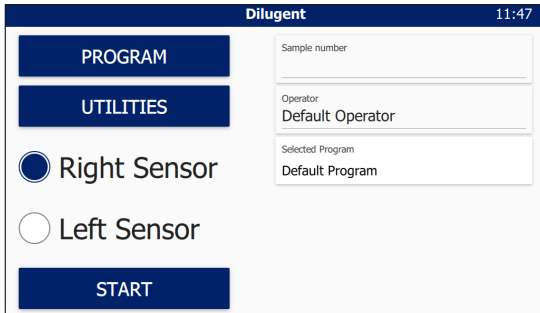


- b) Place the Dilucup® blister (3x7 or 6x7 cups) on the tray. Make sure it is well positioned.
- c) The horizontal position of the Diligent Shaker can be adjusted by the feet located underneath the device.
- d) The position of the screen can be adjusted by moving its support.
- e) The brightness of the screen can be adjusted by two buttons (+ / -) located at the back of the screen.



Instruction for programming

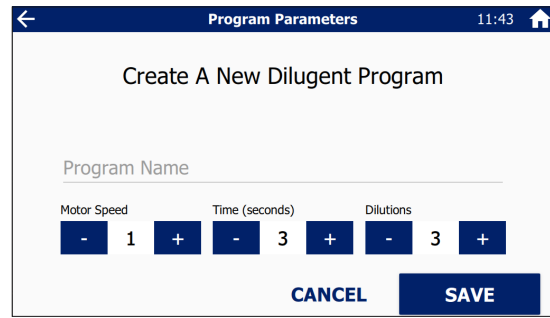
Select “Program” for creating, selecting or deleting a program.



Select “New program” and set up:

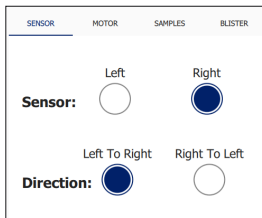
- Program Name
- Motor speed (1 to 6, see table)
- Time (seconds) for each shaking
- Number of dilutions

Motor speed	rpm ($\pm 5\%$)
1	400 rpm
2	450 rpm
3	500 rpm
4	550 rpm
5	600 rpm
6	680 rpm

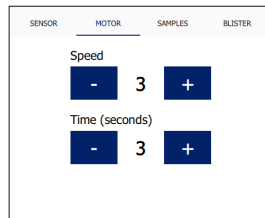


Select the program and the sensor (right or left) that you want to use before pressing “Start”.

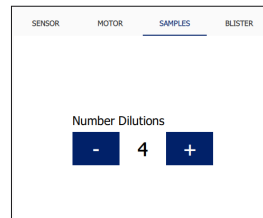
The following parameters of the program can be changed between samples.



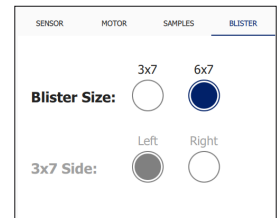
- Sensor:
- Left or Right
 - Direction: Left to Right or Right to Left



- Motor:
- Speed (1 to 6)
 - Time (1 to 60 seconds)



- Samples:
- Number of dilutions (1 to 12)



- Blister:
- Blister Size: 3x7 or 6x7
 - 3x7 Side: Left or Right

Instruction for use

- Remove the protective film from the first row of Dilucups®.
- Pipet 1 mL of the sample into the first cup and activate the shaking by the sensor (right or left).
- After the shaking, pipet 1 mL from the first cup into the following cup if further dilution is required.
- Shake again by using the sensor.
- Repeat the same process until the number of required dilutions is completed.

The LED lights will change in order to guide the user.

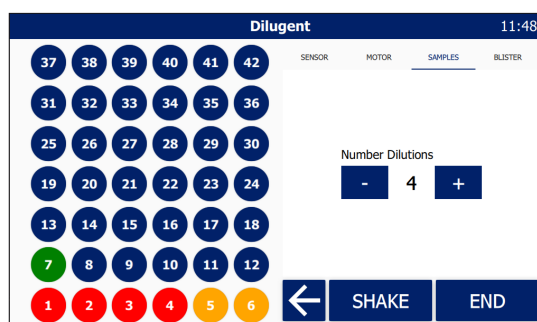
LED colour	Blinking	Explanation
Green	Yes	Position of the sample
	No	Position of the next cup in the dilution series
Orange	No	Position of cups already shaken. The samples can be used for further dilution, collecting or plating.
Red	No	Position of cups already used for previous sample(s).

The cups that are not going to be used can be deselected by touching the corresponding position on the screen.

If needed, press "SHAKE" for extra shaking without affecting the LED lights.

Press the back arrow to undo a step within the same sequence of dilutions (only when the LED lights are still orange).

Press "END" to return to the main menu and end the program.



Maintenance and cleaning

- The Diligent Shaker can remain (with the power **off**) in a laminar flow cabinet even when the ultraviolet light is turned on.
- The metal tray is fastened with magnets and can be removed by lifting one of the corners.
- It is recommended **not** to put alcohol directly on the instrument. You may disinfect moderately with a paper towel dipped in an alcohol solution.
- If "SERVICE REQUIRED" appears in the main menu, go to "UTILITIES" and contact technical service.

Technical data

Power supply	AC input: 100-240 V – 1,6 A – 50/60 Hz DC output: 12 V – 5 A
Size of the tray (l x w x h)	30 x 26 x 2,2 cm
Size of the base (l x w x h)	38 x 29,5 x 5 cm
Size of the screen (h x w x d)	12,7 x 18,4 x 1,1 cm / (7")
Weight	5,1 kg