

ELISA PLATE SHAKER

DIA4000

User Manual

Version 09.23



DIAsource ImmunoAssays S.A.

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1. General Information

1.1. Warranty Information:

Each Instrument is completely tested and guaranteed for twelve months from delivery. The warranty applies to all the mechanical and electrical parts. It is valid only for proper installation, use, and maintenance in compliance with the instructions given in this manual.

DIAsource ImmunoAssays S.A. will at its discretion repair or replace parts, which may be found defective in the warranty period. The warranty does not include any responsibility for direct or indirect personal and/or material damages, caused by improper use or maintenance of the instrument.

Parts that are inherently subject to deterioration are excluded from the warranty. In case of defects due to misuse of the instrument, any incidental expenses like travel and man-hour service charges will be charged extra.

1.2. Technical Service:

DIAsource ImmunoAssays S.A. is always accessible to the customers for any kind of information about installation, use, maintenance, etc. While asking for service, please refer to this manual, and report the printed serial no. on the identification label.

Only qualified technicians are entitled to fix the instrument; the user, as described in this manual, should carry out ordinary maintenance.

1.3. Disposal instruction:

In case of removal or disposal of instrument, following instructions need to be followed

- Do not dispose in municipal waste; follow local regulations for instrument disposal.
- Plastic parts, Electronic PCBs and components can be recycled, so return back the instrument to manufacturer.

1.4. Contacts:

DIAsource ImmunoAssays S.A.

Rue du Bosquet 2

BE-1348 Louvain-La-Neuve

BELGIUM

Instrumentation Support Service

Hotline phones availabilities : Monday to Friday; 08 :00 to 16:30 (Belgium time)

Hotline phone number : 0032 (0)10 849976

Fax : 0032 (0)10 849990

Email : instrumentation@diasource.be

2. General Safety Warnings

2.1. Security

Before using the instrument, user need have a complete understanding how to operate it safety. Before running the instrument, please read this manual carefully.



Forbid anyone to operate the instrument before reading the manual.

If operate not in accordance with the tips on the manual ,the heat generated by the instrument at runtime may cause severe burns, and electric shock accident. Please read the following safety tips and guidance, and implementation of all precautions.



When operation, maintenance and repair of this instrument, it must subject to the following basic safety precautions. if you don't abide by the warnings pointed in the manual , may affect the protection and intended use scope of the instrument.



Before operating this equipment please read this manual carefully, otherwise it may cause personal injury.

Only in the aspect of how to use electrical equipment installation trained qualified inspection personnel to operate the equipment.



Operators do not attempt to open or repair equipment, doing so will make you lose the warranty qualification, also may be limited by electric shock. If you need repair, please contact our company. In order to avoid electric shock accident, the instrument input power cord must be reliable grounding. This instrument uses three core grounding plug, of which the third feet for grounding, which should be used with grounding type power socket.



Before connecting the power supply, ensure the power supply voltage and the instrument voltage required the same. And make sure that the power outlet rated load no less than the instrument requirements.

If the power cord damaged, replace it according to the same type and specifications. Don't press anything on the power cord when it be used, don't put the power cord in place where people often walk. When insert the power cord plug, must hand-hold the plug and ensure that the plug is completely

inserted into the socket, when pull out the plug, must hand-hold the plug as well and don't pull the power cord.



The instrument should be put in lower humidity and less dust and away from water and avoid direct sunshine and strong light, indoor should be well ventilated, no corrosive gas or strong magnetic field interference, away from heat, stoves and other heat sources. Don't take equipment in wet or dusty places.

In order to avoid temperature overheating ,do not block or cover the vent holes on the instrument. when several equipment be used at the same time, the more the distance between each instrument shall be not less than 30 cm.













Shutting off the power when stop working. unplugging the plug and using soft cloth or plastic cover to prevent dust from entering the instrument when long time no use.

When happened as following listed cases, it should be pulled the power socket immediately and contact the supplier or trained maintenance personnel:



- Liquid into instrument;
- Instrument damaged by rain or water;
- Instrument don't work properly, especially appear any abnormal Sound or smell;
- Instrument drops or shell damage;
- Instrument functions have obvious changes;

2.2. General Symbols

Symbol	Description
	For internal and external grounding. Please ensure that the instrument is well grounded.
	Power-on
	Power-off
	Caution: To avoid injury, death, or damage to the instrument, the operator must comply with the instructions in the manual.
	CE mark
	Symbol for “Manufacturer”
	Indicates correct upright position of the transport package.
	Contents of the transport package are fragile therefore it shall be handled with care.
	Transport package shall be kept away from rain.
	Transport package shall not be rolled.

3. Introduction

3.1. Use of the Instrument

Elisa Plate Shaker (Ref. DIA4000) is a laboratory equipment controlled by brushless DC motor and PID intelligent temperature control technology. It is small volume, light weight, no pollution; temperature, shaking speed and time showed in a LCD display, beautiful and easy to operate. Mainly used for shaking and cultivation with elisa plates(96/384 wells),tissue culture plates(24/48/96 wells).

Features:

- ◆ LCD real-time display system status and parameter values.
- ◆ Equipment is stable and reliable for long time operation with high quality switch power.
- ◆ It is easy to operate with one-touch knob.
- ◆ With power recovery function, when power recovers after outage, equipment can automatically resume to operate according to the original process.
- ◆ Microprocessor controlled, temperature controlled with good liner, small fluctuations.
- ◆ With any setting incubation time from 0 to 100 hours, when time ends ,equipment will automatically make warning noise.
- ◆ Double heating system ensures the stability of incubation.
- ◆ Low noise and maintenance-free with brushless DC motor.

3.2. Specifications

Normal operation condition

Ambient temperature: 5°C ~ 30°C

Relative humidity: ≤70%

Power supply: AC220V

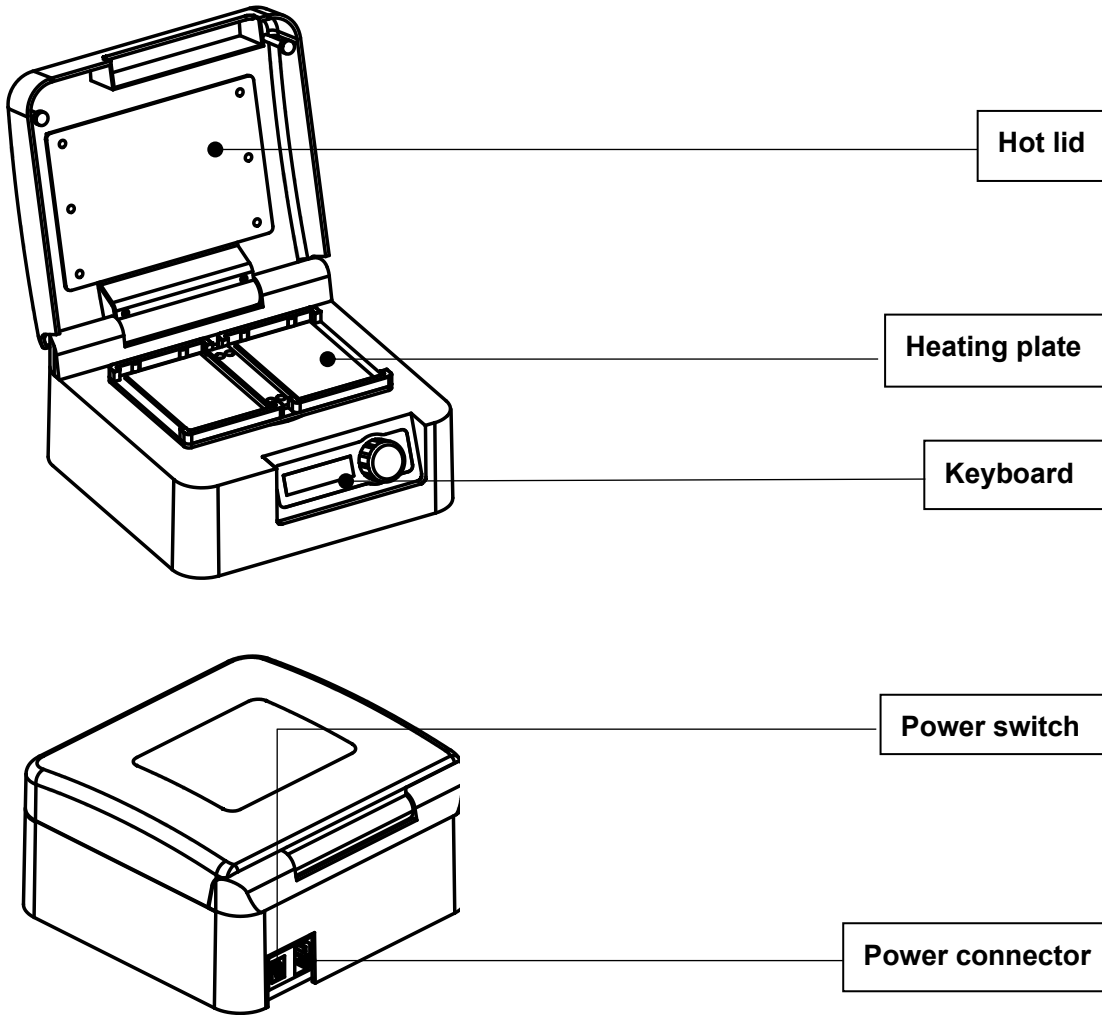
Parameters and performance

Parameters	
Temperature	RT.+5 °C ~80 °C
Time setting	1min ~ 99h59min
Shaking speed range	200~1600rpm
Accuracy of temperature	≤± 0.5 °C
Display accuracy	0.1 °C
Temperature uniformity	≤± 0.5 °C
Heating time	≤10 min (from room temperature to 80°C)
Capacity	2pcs micro plates or culture plates
Heating	Heating film
Power	150W
Dimension(mm)	280×270×140
Weight (kg)	7.0

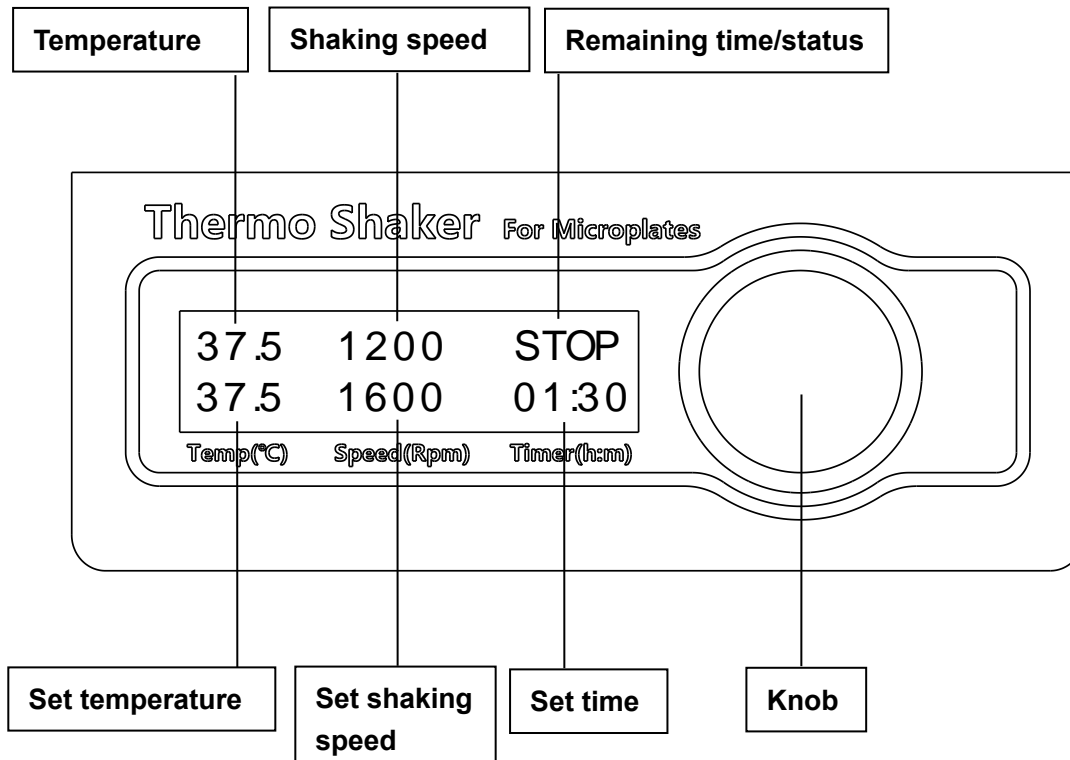
4. Instrument Description

This chapter introduces Elisa Plate Shaker mechanical structure and the central panel's functions and some preparations before power-on. You should be familiar with this chapter before the shaker is first operated.

4.1. Structure description



4.2. Keyboard description



Note : Remaining running time/ status

START : Instrument is running according to set parameters.

STOP : Instrument stops running and is in parameter setting.

KEEP : Instrument will run continuously according to set temperature and shaking speed till users turn off it.

01:29 : The remaining time is 01: 29,when time is over, instrument will stop running.

5. Operation Guide

5.1. Temperature and time setting

a) When the instrument powers on, display screen will show system loading. The instrument goes into the initial state with a sound

System loading
.....

b) PV displays current temperature(25.0) and “Stop” means system is in parameter setting interface.

37.5 1600 01:29
37.5 1600 01:30

c) Press knob, turn left to select parameters that need to be adjusted. Add or reduce the value by clockwise or counter clockwise.

37.5 1600 01:29
37.5 1600 01:30

5.2. Start/stop

a) Press knob continuously(more than 2 seconds), instrument will run with 2 sounds and start to count down when temperature reaches setting temperature.

25.0 200
START
.....

b) When time is over, instrument stops heating , then start cooling and displays current temperature. Press knob, system will return to setting interface.

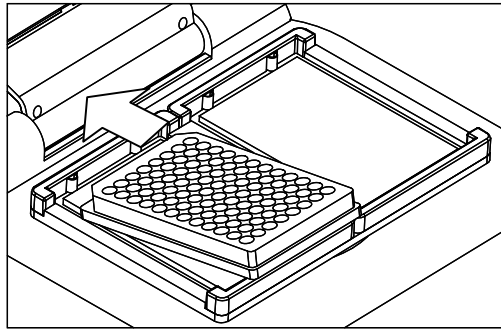
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65.0

Note:

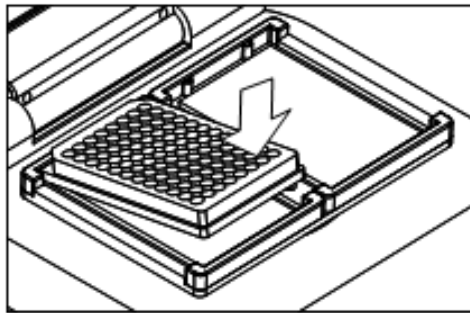
During running, press knob continuously(more than 2 seconds),instrument will stop heating and return to setting interface.

5.3. Micro plate installation

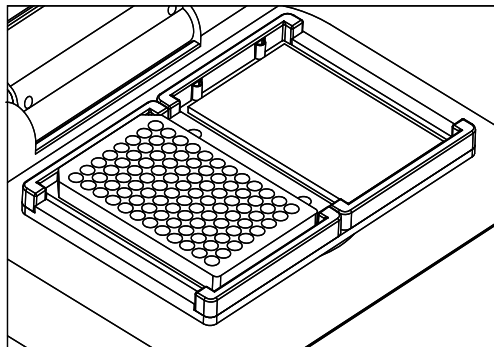
a) Open cover, let one side of microplate near shrapnel and compress it as per direction of arrow.



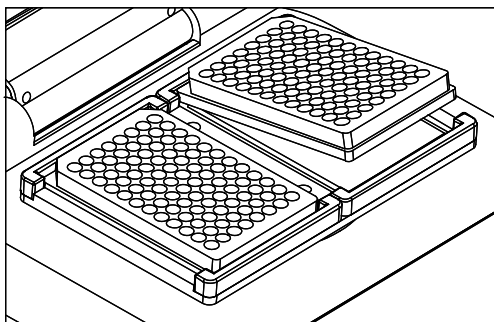
b) Press down the other side of microplate as per direction of arrow.



c) Press down micro plate and touch with heating plate.



d) Fix another plate according to above steps.



6. Troubleshooting

NO	Phenomenon	Possible Causes	Processing Procedure
1	Display window doesn't response after power-on	No power	Check the connection of power
		switch damaged	Change switch
2	Temperature display serious incompatible with the actual temperature	Sensor damaged	Contact to supplier
3	LCD displays: "Fault Status" "PT-Error!"	sensor fault	Contact to supplier
4	LCD displays: "Fault Status" "ADC-Error!"	Data acquisition circuit fault	Contact to supplier
5	LCD displays: "Fault Status" "Unknown!"	Unknown failure	Reboot instrument or contact to manufacturer
6	No heating of block	Sensor fault or heating block damaged	Contact to supplier or manufacturer
7	The knob key invalid	The knob key damaged	Contact to supplier or manufacturer