

# **ORBITAL SHAKER**



## **Instruction Manual**



**Model : LOS-500**

**Please read this manual carefully before using the instrument**

**Labnics Equipment**

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# Table of Content

CHAPTER	CONTENT	PAGE No.
1	Before Use	1
2	Safety Precaution	1
2.1	Power Connection	1
2.2	Installation	2
2.3	Operation	2
2.4	Maintenance	2
3	Product Feature	3
4	Specifications	4
5	Parts and Functions	4
5.1	Main Controller	4
5.2	Main controller parts and description	5
6	Operation	6
7	Frequently Asked Question	8
8	Trouble Shooting	8
9	Setting Factory Parameters	8
10	Inspection Log For Shaking Incubator	9
11	Maintenance and Service Check List	10
12	Service Report	11
13	Certificate Of Warranty	12

## CHAPTER1. BEFORE USE:-

- Thank you for choosing **LABNICS** Laboratory Products.
- Please read this operation manual carefully before using the instrument for your safety and optimum operating performance.
- If you have any query, please contact our sales representatives or service department.

## CHAPTER 2. SAFETY PRECAUTION:-

This manual contains important operating and safety information. You must carefully read and understand the contents of this manual prior to the use of this equipment.



### **Warning:-**

Warning alert you to a possibility of personal injury



### **Caution:-**

Caution alerts you to a possibility of damage to the equipment.

### 2.1 Power Connection:-



### **Caution**

- Your Orbital Shaker is designed for 110VAC 60Hz 1P or 220VAC 50Hz 1P or 220VAC 60Hz 1P.
- Check electrical requirement on the name plate before use.
- Connect to receptacle with ground connection.
- Be sure to connect on sufficient electrical current receptacle.

## 2.2 Installation:-



**Caution**

- Do not use in high humid environment
  - May cause Electrical leakage.
  - Corrosion may occur.
- Do not use in high temperature environment or so not use besides instrument generating heat.
- Place flat, rigid and leveled surface.

## 2.3 Operation :



**Warning**

- Moving parts in the chamber may cause serious injury.
- Do not use with volatile, flammable and explosive material.
- Do not put volatile, flammable and explosive material nearby the instrument.
- Moving parts may cause serious injury during operation. Be sure to put or withdraw samples or containers in the rack after shaking motion is completely stopped.



**Caution :**

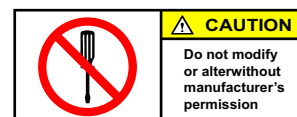
- Be careful not to spill liquid on the control panel.
- When you place samples or containers on the flask holders or spring rack, be sure about the weight balanced. Wrong balanced weight may cause damage to motor or shaking mechanism and may cause noise or vibration.

## 2.4. Maintenance:-



**Caution**

- Do not pour water or any liquid while cleaning the chamber.
- Do not use highly organic solvent for cleaning the surface of chamber.
- Do not modify or alter electrical circuit or hardware.



## CHAPTER 3. PRODUCT FEATURE:-

**LABNICS LOS-500** Orbital Shaker is.....

Agitating samples in a container in ambient condition (e.g. flasks, bottles, tubes etc.) to aerate or mix by orbital motion. Various applications in chemistry, biomedical, pharmaceutical, cell culture and tissue culture.

### Feature:-

- Speed control from 60 to 250 oscillations per minute (rpm).
- Precise digital feedback microprocessor speed control within  $\pm 1$  rpm.
- Dual 4-Digit LED displays set speed and actual speed or time simultaneously.
- Equipped with wait-off timer for convenience.
- Heavy duty, well balanced shaking mechanism for stability and durability.
- AC powered geared motor guarantee durability and power.
- Stands up to 15 kg of sample load.
- Shaking amplitude of 20 mm.
- Easy to interchange platforms, see optional accessories for platform selection.
- Epoxy covered outer casing.

### CONTROL SYSTEM:-

- Digital feedback microprocessor control system.
- Digital display of PV and SV of rpm and time.
- Wait-Off Timer: 99min 59sec / 99hr 59min / continuous time scale selectable.
- Adjustable speed-up and slow-down rate control in rpm/sec. for smooth start-up and stop.

### SAFETY:-

- Over current cut-off: CG Fuse.

### ERROS AND ALARM INDICATION :

- Audible and visual alarm on shaking motion failure.
- Audible and visual alarm on over speed and cut-off.

## CHAPTER 4. SPECIFICATIONS:-

<b>Model No.</b>		<b>LOS-500</b>
Platform Size		500 x 500 mm
Shaking	Speed	60 x 250 rpm
	Stroke	20mm Orbital motion
Controller		Digital feed back control
Wait off Timer		mm:ss / hh:mm / dd:hh / Continuous Selectable
Sensor		TACHO Meter
Safety Device	EL Leakage	CG Fuse
Dimension (W x D x H) mm	Platform	500 x 500 mm
	Outer	530 x 550 x 230 mm
Material	Flask Platform	SPC-3T with Powder Coating
	Spring Rack	Stainless Steel (SUS304) /w Spring and Hook
	Body	Powder Coated Steel
Electrical Requirement		220V, 50/60 Hz
Catalog No.		17150101

### Optional Accessories :

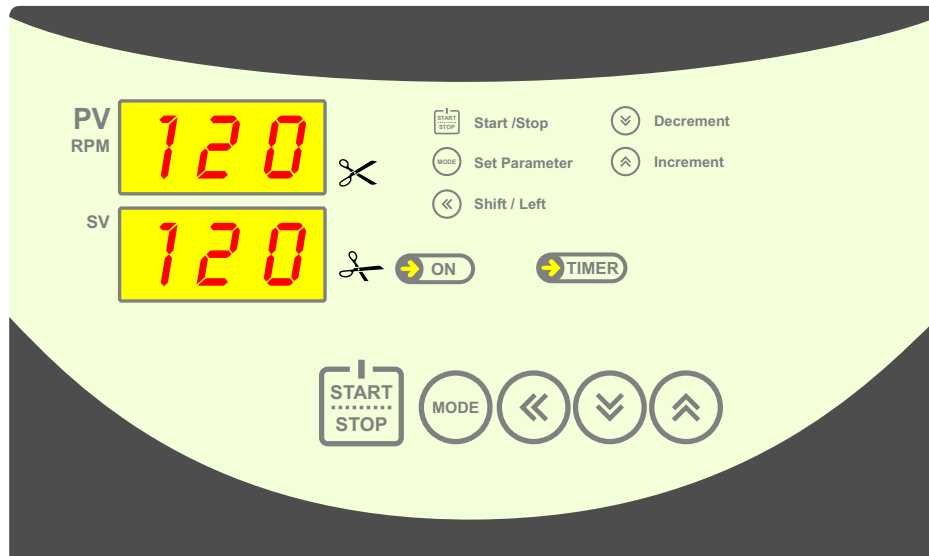
Description	Catalog No.
Flask Holder Platform- 200-300ml x 20EA	17150111

## CHAPTER 5. PARTS AND FUNCTIONS

### 5.1 Main Parts :



## 5.2 Main Controller :



### [DISPLAYS]

#### ✂ PV LED Display

- Displays present shaking speed in RPM.

#### ✂ SV LED Display

- Displays setting shaking speed or wait off Time.
- Press DSP to show speed and time alternatively.

### <PILOT LAMPS>

#### ⚡ ON LAMP

- Lamp blinks during operation.

#### 🔔 TIMER LAMP

- Lamp glows when user set wait off timer.

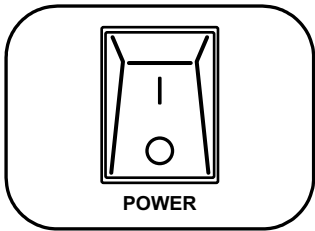
### [BUTTONS]

#### 🔑 START/STOP BUTTON

- Start and stop operation.

#### 💡 MODE BUTTON:-

- Push to change user set values.



#### **SHIFT BUTTON:-**

- Move cursor to the left to change values.

#### **DEC BUTTON :**

- Change set values by 1 decrement.

#### **INC BUTTON :**

- Change set values by 1 increment.

#### **DSP BUTTON**

- Display set value of time and speed alternatively.

#### **POWER SWITCH**

- Main Power Switch.

## **CHAPTER 6. OPERATION:-**

### **Before Operation:-**

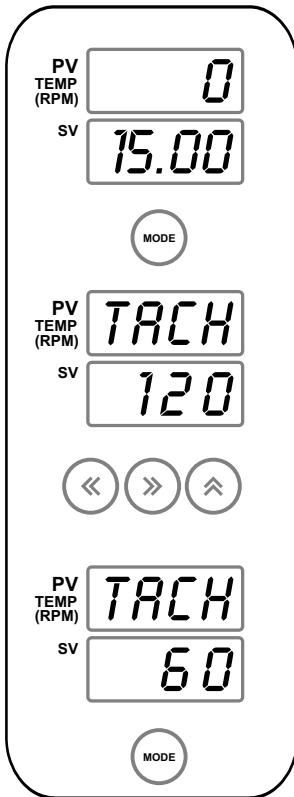
- 1) Check electrical requirement on the name plate before connecting.
- 2) Place your Orbital Incubator on the flat, rigid and leveled surface.
- 3) Remove packing materials.
- 4) Be sure to place shaking platform or universal wire rack on the right position and well balanced.
- 5) Connect power plug in rear panel to wall mount receptacle.

### **Getting Started:-**

- 1) Load sample containers on the Spring Wire Rack or Flask Holders.
- 2) Be careful sample containers are weight balanced symmetrically.
- 3) Turn the **POWER** switch on. The **PV LED READOUT** displays present operating status.



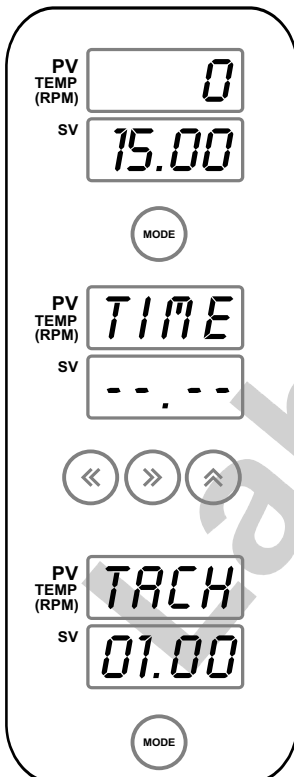
## SETTING RPM



### Setting Speed in RPM :

- 1) Press MODE button to set shaking speed.
- 2) LED display panel on top (PV) displays 'TACH'
- 3) LED display panel on bottom (SV), last digit of the LED display blink and prompt user input. **(000)**
- 4) Press ◀ button to move to digit you want change value.
- 5) Press ▲ button to change value from 0 to 9.
- 6) Set speed value in RPM you want to operate.

## SETTING TIME



### Setting Timer :

- Press MODE button again after RPM setting.
- LED display panel on top (PV) displays 'Time'.
- LED display panel on bottom (SV), last digit of the LED display blink and prompt user input. **(00.00 in mm:ss)**.
- Press ◀ button to move to the digit you want to change value.
- Press ▲ button to change value from 0 to 9.
- Set four digits of time you want to operate.
- You can set timer up to 59 min 59 sec maximum.
- Press MODE button to finish timer setting.

## CHAPTER 7 : TROUBLE SHOOTING:-

Error Symbol	Cause	Solution
Err0	Cannot start moving within 10 seconds	Weight is too heavy or imbalanced loading
Err1	Speed exceeding + 30 rpm than maximum speed limit	Imbalanced loading

## CHAPTER 8. SETTING FACTORY PARAMETERS:-

- To set factory parameter A, press and hold **MODE** Button for 5 seconds.
- Press **SHIFT** and **INC** Button to change values.
- Press **MODE** Button to go next parameter.
- To escape from Parameter mode to normal display mode, press and hold **MODE** Button for 6 seconds.

### Factory Parameter A

Parameter Symbol	Name of Parameter	Setting Range and Descriptions	Factory Default	User Set Value
BEEP	Beep on time DLOC	0 ~ 9999 Sec. Button and data lock	30 0000 ~ 1111	0000

### To set factory parameter B,

- Get back to normal display mode
- Press and hold **SET** Button for 30 seconds.
- LED displays "**PASS**" and waiting for user input.
- Press **SHIFT** and **INC** Button to change values.
- Press **MODE** Button to go to next parameter.
- To escape from Parameter mode to normal display mode, press and hold **MODE** Button for 6 seconds.

### Factory Parameter B

Parameter Symbol	Name of Parameter	Setting Range & Descriptions	Factory Default	User Set Value
<b>PASS</b>	Password		7777	do not change
<b>U-LT</b>	Maximum rpm	0 ~ 1700 rpm	300	
<b>L-LT</b>	Minimum rpm	0 ~ 1700 rpm	20	
<b>USLP</b>	Acceleration and Deceleration rate	1 ~ 50 rpm	16	
<b>GEAR</b>	Gear Rate	1.00 ~ 60.00	4.0	
<b>FRPM</b>	Fix rpm display within set value	0 ~ 99	5	

## CHAPTER 9. INSPECTION LOG FOR ORBITAL SHAKER:-

Model: \_\_\_\_\_ Serial No. \_\_\_\_\_ Client: \_\_\_\_\_

Date & Time: \_\_\_\_\_ Amb. Temp.: \_\_\_\_\_ Electricity: **VAC HZ** \_\_\_\_\_

### LOS-500 Pretest check list (Initial after each Checkpoint)

If Non-Applicable enter **N/A**

Termination of each electrical connections		Equipped with proper accessories	
Surge protection termination		Esthetics ok	
Control panel key switch tight			

**LOS-500 TEST AREA, TEST LOG (NOTE)** If units fails any portion of the test enter "**NG**" in the blank space adjacent to that check point

Technician		Setpoint security verified	
Volts at plug/terminal strip / Hz		Labeling on components correct	
Cut in voltage		Molded plug not overheated	
Surge			
Verify over temp. protection			
RPM Stability @ 60 RPM			
RPM Stability @ 120 RPM			
Speed Tuning			
Minimum RPM @ 20 rpm			
Maximum RPM @ 300 RPM			
No contact on moving parts			
No noise during operation			

Released from test by:

From#QCF001frm:

Approval:

**CHAPTER 10. MAINTENANCE AND SERVICE CHECK LIST:-**

Model	<b>LSO-500</b>			
Descriptions	Orbital Shaker			
Serial No.				
Date	Check	Technician	Remarks	Sign
ie 2008.	Shipment			

- Check     
  Clean-Up     
  Replace

Article	Every 6 Mo.	Every Yr.	Every 2 Yr.
Controller		○	
MAIN S/W		○	
Motor Assy's		○	
Shaking Mechanism Assy's	⊙	○	
Power Belt		○	

## SERVICE REPORT

Customer's Address : _____ _____	Tel.No.: _____ Fax No.: _____ Weekly Off.: _____
Contact Person / Designation : _____	Dept.: _____

Date	Time		System Configuration	Model	Serial No.	Date :	SR. No.	
	From	To					Status : OK <input type="checkbox"/>	Not OK <input type="checkbox"/>
						Installation <input type="checkbox"/>	Warranty <input type="checkbox"/>	
						Demonstration <input type="checkbox"/>		
						Maintenance <input type="checkbox"/>	Contract <input type="checkbox"/>	
						Repairs <input type="checkbox"/>		
						Application <input type="checkbox"/>	Billable <input type="checkbox"/>	
						Calibration <input type="checkbox"/>		
						Validation <input type="checkbox"/>	Courtesy <input type="checkbox"/>	

Nature of Problem : \_\_\_\_\_  
\_\_\_\_\_

Observation & Action Taken : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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Customer's Remarks : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Parts Replaced : \_\_\_\_\_  
\_\_\_\_\_

Parts Recommended / Action Required : Yes <input type="checkbox"/> No <input type="checkbox"/>		Requisition Number :
Service Engineer's Name & Signature	Customer's Name, Signature, Date & Stamp	

## CHAPTER 12. LIMITED WARRANTY:-

Descriptions	Orbital Shaker
Model	LOS-500
Serial No.	
Warranty Period	12 Months after purchase
Date of Purchase	
Purchase From	

### WARRANTY COVERAGE :

Labnics's warranty obligations for the products are limited to the terms set forth below:

- **Labnics** warrants the product against defects in materials and workmanship for a period of one (1) year from the date of original purchase ("**Warranty Period**"), providing that the unit is operated according to the instruction in the operating manual.
- The guarantee comprises removal of all damages that arises during the guarantee period and that are proven to be due to faulty material or poor workmanship.
- If a defect arises and a valid claim is received by **Labnics** within the Warranty Period, at its option, **Labnics** will (1) repair the product at no charge, using new or refurbished replacement parts, (2) exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product.
- If a defect arises and a valid claim is received by **Labnics** after the first one hundred and eighty (180) days of the Warranty Period, a shipping and handling charge will apply to any repair or exchange of the product undertaken by **Labnics**.
- **Labnics** warrants replacement products or parts provided under this warranty against defects in materials and workmanship from the date of the replacement or repair for ninety (90) days or for the remaining portion of the original product's warranty, whichever provides longer coverage for you. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes **Labnics's** property. When a refund is given, your product becomes **Labnics's** property.

### EXCLUSIONS AND LIMITATIONS :

This Limited Warranty applies only to the product manufactured by or for **Labnics** that can be identified by Name Plate.

**Labnics** is not liable for any damage to or loss of any products or material stored or tested in the instruments or programs, data, or other information stored on any media contained within the product, or any **non-Labnics** product or part not covered by this warranty. Recovery or reinstallation of programs, data or other information is not covered under this.

## LIMITED WARRANTY :

This warranty does not apply:

- (a) to damage caused by accident, abuse, misuse, misapplication, or **non-Labnics** products;
- (b) to damage caused by service performed by anyone other than **Labnics**;
- (c) to a product or a part that has been modified without the written permission of **Labnics**; or
- (d) if any **Labnics** serial number has been removed or defaced; or
- (e) if the unit is not used according to its purpose; or
- (f) no original spare parts are used.

TO THE MAXIMUM EXTENT PERMITTED BY LAW, **LABNICS** IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING ANY COSTS OF RECOVERING OR REPRODUCING ANY PRODUCT OR MATERIAL STORED OR TESTED IN THE INSTRUMENTS, PROGRAM OR DATA STORED IN OR USED WITH THE **LABNICS** PRODUCT, AND ANY FAILURE TO MAINTAIN THE CONFIDENTIALITY OF DATA STORED ON THE PRODUCT. **LABNICS** SPECIFICALLY DOES NOT REPRESENT THAT IT WILL BE ABLE TO REPAIR ANY PRODUCT UNDER THIS WARRANTY OR MAKE A PRODUCT EXCHANGE WITHOUT RISK TO OR LOSS OF MATERIAL, PROGRAMS OR DATA.

FOR CONSUMERS WHO HAVE THE BENEFIT OF CONSUMER PROTECTION LAWS OR REGULATIONS IN THEIR COUNTRY OF PURCHASE OR, IF DIFFERENT, THEIR COUNTRY OF RESIDENCE, THE BENEFITS CONFERRED BY THIS WARRANTY ARE IN ADDITION TO ALL RIGHTS AND REMEDIES CONVEYED BY SUCH CONSUMER PROTECTION LAWS AND REGULATIONS. TO THE EXTENT THAT LIABILITY UNDER SUCH CONSUMER PROTECTION LAWS AND REGULATIONS MAY BE LIMITED, **LABNICS'S** LIABILITY IS LIMITED, AT ITS SOLE OPTION TO REPLACEMENT OR REPAIR OF THE PRODUCT OR SUPPLY OF THE REPAIR SERVICE AGAIN.

**Note:** Before you deliver your product for warranty service it is your responsibility to remove all products or materials stored in the instrument.

Before returning a defective unit, please contact local representative or **Labnics** Support Center at **info@labnics.com**. **Labnics** will issue RGA number for authorized return. If we agree to the unit being returned, arrange for careful packing and send the unit to

## LABNICS

Please remember to describe the kind of fault you found and state your complete address.