



Laboratory Equipment Manufacturer  
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# Operation Manual for **LOM-150DIG/500DIG**

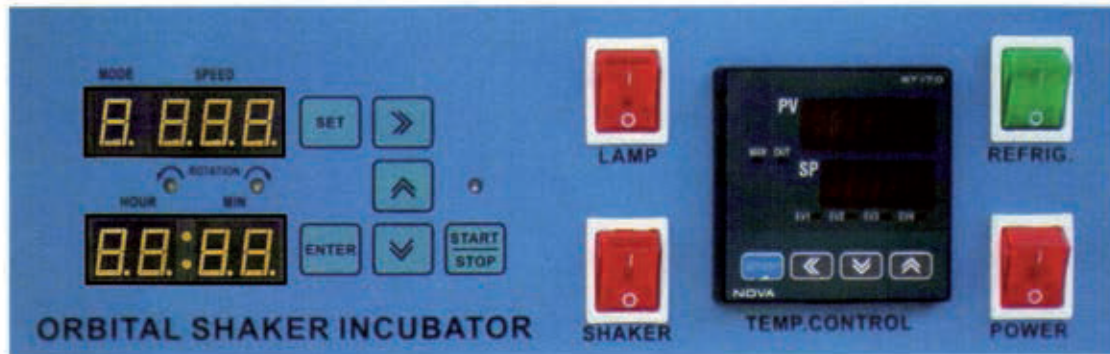
LOW-TEMP. SHAKER INCUBATOR



**PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION**

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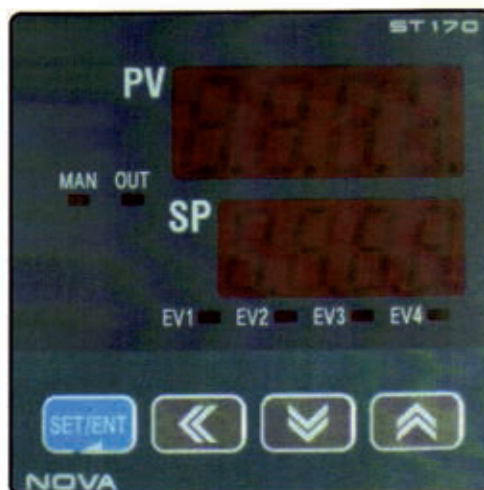
## INSTRUCTIONS TO BE USED:

### Setup Instructions

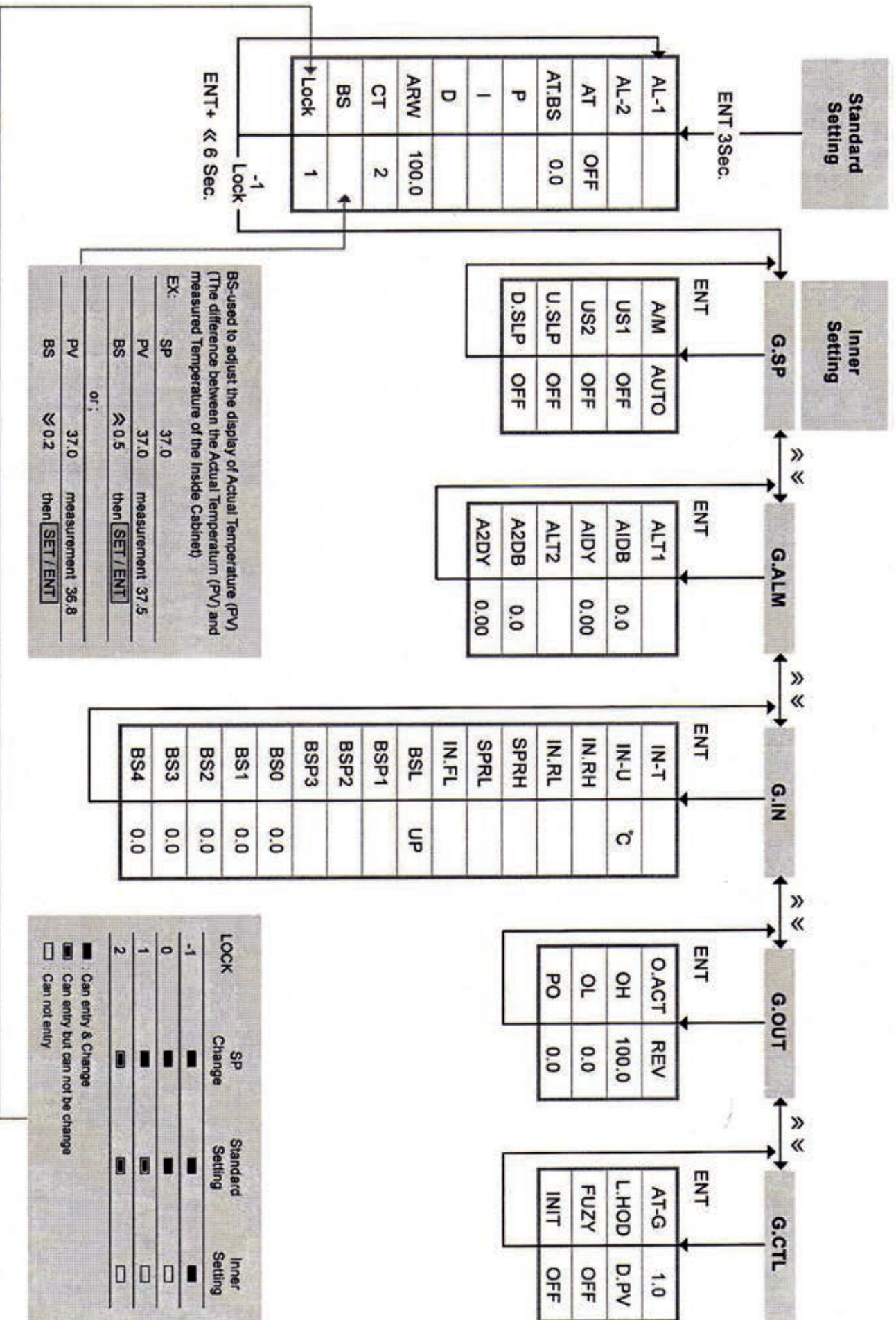
- Remove all the packaging and position.
- Make sure there is enough ventilation around the instruments' grills.
- Adjust bolts next to castor feet to make level.
- Plug in and turn on the Power Switch.

## OPERATIONS:

### TEMPERATURE CONTROLLER



# TEMPERATURE CONTROLLER(INSIDE SETTINGS) ST-140 / 160 / 170





## Temperature Control

Temperature Control is controlled by a digital P.I.D controller which shows the internal temperature and required set temperature. Holding down the SET/ENT button will take you into the programming and calibration of temperature control unit.

## Key Pad Functions

● PV	Temperature inside the chamber.
● SP	Required temperature of the chamber.
● EV1	Over-Heat Temperature; Lights on when the set temperature is over 3°C and turns off the heater.
● EV2	Over-Low Temperature; Compressor will off when the set temperature is Lower to 10°C and turns on the light.
● EV3	Not activated
● EV4	Not activated
● MAN	Lights on when manual mode operates or; LED blinks during auto-tuning process.
● OUT	Light on when heater is activated.
● SET/ENT	Save data, move between functions.
● ⏪ ⏩ ⏴ ⏵	Arrow Keys is used to change the set and numbers on screen.

## Refrigerator Control

Do not operate refrigerator when room temperature is over 40°C, as this will increase the work load of the compressor and will reduce its life span. The compressor will automatically off when the room temperature is 40°C.

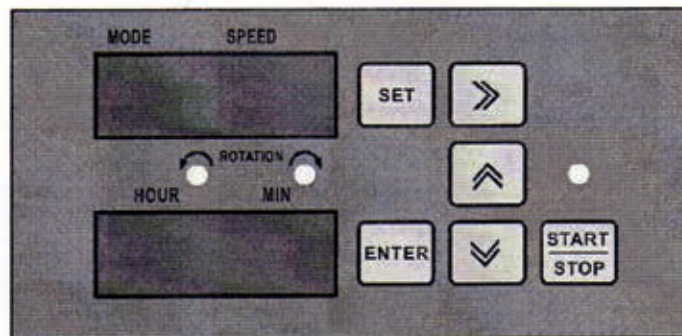
## Light Control

The equipment has an internal light and front view window that allows the user to view the inside chamber without opening the front door.

## Speed Control

Turn on the shaker switch to start the operation.  
The speed of the shaker is displayed on the screen.  
The shaker stops when the lid is open.

## NAME AND FUNCTION OF SPEED CONTROL PANEL



• START/STOP	Light will on when shaker starts to operate. Light blinks when shaker stop to operate.
• SET	Used to change the set on screen.
• <<	Right arrow key is used to shift the position when modifying value.
• <math>\uparrow \downarrow</math>	Upward and downward arrow key is used to change the time and speed of the shaker.
• ENTER	Lock/used to proceed to the next step.
• MODE	Segment of the Program (1-9 segment).
• SPEED	Displays the speed of the moving shaker.
• ROTATION	Shaker's movement Left light will on when the shaker rotates to left side. Right light will on when the shaker rotates to right side.
• HOUR/MIN	Displays the shaker's rotation period.
• C	The cycle of set MODE.



## OTHER FUNCTIONS :

- **» C** **CYCLE**  
When the shaker stops, Press **»** for 10 seconds to check the **CYCLE** of the shaker (can be set 1-999/ set 000, the shaker's rotation is continuous) then press **ENTER**.

- **^ H - L** **Maximum and Minimum Speed**  
When the shaker stops, Press **^** for 10 seconds to check the maximum and minimum speed of the shaker (speed can not be changed) then press **ENTER**.

- **∨** **Speed Measurement**  
When the shaker stops, Press **∨** for 10 seconds to check the speed of the shaker.  
Ex. Speed 300 rpm; measurement 295 rpm, change the green LED to 295 rpm then press **ENTER**.

For 2000ml & 1000ml flasks, the speed is 150rpm only .  
We suggest you to installed the 2000 ml on the upper platform

**Press SET key (hold down) then turn on the power switch.**

### MODE

**0 . 2 6 7** Gear Ratio (Please don't change.)

ENTER

**H 4 0 0** Maximum Speed.  
**L 2 7** Minimum Speed.

ENTER

**H 4 0 0** Maximum Speed (can be change.)

ENTER

**C o n 1** Continues the operation after power failure.  
**C o n 0** Doesn't continue the operation after power failure.

ENTER

**A 1 1 1** Buzzer 0 Buzzer Off  
1 Buzzer On

→ The buzzer beeps when the set C (cycle) time ends.  
→ All key pads have buzzer.  
→ Only START/STOP key have buzzer.

ENTER



# SAMPLE SETTING

## ROTATION: CONTINUOUS SINGLE DIRECTION 300 rpm TIME 00:00 MIN.

POWER → SET = 1 0 0 0 → MODE SPEED → 1 3 0 0 → MODE SPEED → ENTER = 0 0 : 0 0 → HOUR MIN → ENTER = 0 0 : 0 0 → HOUR MIN → START

## ROTATION: SINGLE DIRECTION WITH TIMER 300 rpm TIME 12:30 MINS.

POWER → SET = 1 0 0 0 → MODE SPEED → 1 3 0 0 → MODE SPEED → ENTER = 0 0 : 0 0 → HOUR MIN → 0 → HOUR MIN → 0 : 0 0 → HOUR MIN → START

POWER → SET = 1 0 0 0 → MODE SPEED → 1 3 0 0 → MODE SPEED → ENTER = 0 0 : 0 0 → HOUR MIN → 0 → HOUR MIN → 0 : 0 0 → HOUR MIN → START

## ROTATION: PROGRAMMED

- ① 400 rpm Time 01:30 MINS.
- ② 300 rpm Time 00:50 MINS.
- ③ 0 rpm Time 00:30 MINS.
- ④ 0 rpm Time 00:00 MIN.
- ⑤ L:000
- ① 400 rpm Time 01:30 MINS.
- ② 300 rpm Time 00:50 MINS.
- ③ 0 rpm Time 00:30 MINS.
- ④ 0 rpm Time 00:00 MIN.
- ⑤ L:010

POWER → SET = 1 0 0 0 → MODE SPEED → 1 4 0 0 → MODE SPEED → ENTER = 0 0 : 0 0 → HOUR MIN → 0 1 : 3 0 → HOUR MIN →

→ ENTER = 2 0 0 0 → MODE SPEED → 2 3 0 0 → MODE SPEED → ENTER = 0 0 : 0 0 → HOUR MIN → 0 1 : 3 0 → HOUR MIN → ENTER = 0 0 : 0 0 → HOUR MIN →

→ ENTER = 3 0 0 0 → MODE SPEED → ENTER = 0 0 : 0 0 → HOUR MIN → 0 0 : 3 0 → HOUR MIN →

→ ENTER = 4 0 0 0 → MODE SPEED → ENTER = 0 0 : 0 0 → HOUR MIN →

→ ENTER = C 0 0 0 → MODE SPEED → ENTER = 0 : 0 0 → HOUR MIN → START

= C 0 0 0 → MODE SPEED → C 0 1 0 → MODE SPEED → ENTER = 0 : 0 0 → HOUR MIN → START