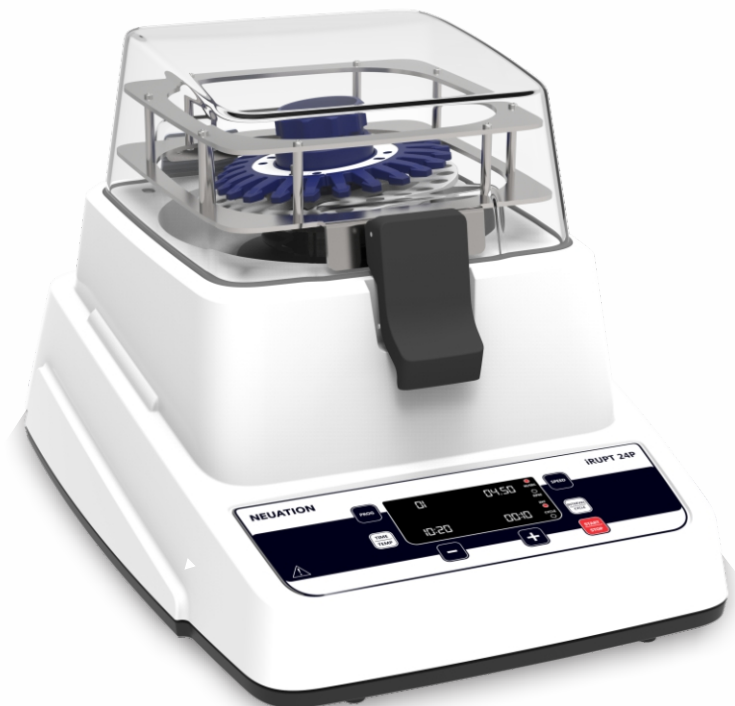


NEUATION

TECHNOLOGIES



iRUPT 24P

PRODUCT USER MANUAL

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1. INTRODUCTION

This manual provides important safety information for this homogenizer. It should be kept near the homogenizer for quick & easy reference. This homogenizer is equipped with a maintenance free drive, a large digital display & a simple interface for silent & efficient operation in the lab. This homogenizing instrument is meant for grinding samples through high speed agitation motion by metal/silica balls of specific sizes appropriate for sample grinding inside tubes. With wide speed range of agitation & timer setting makes grinding of samples more easier & quicker.

2. INTENDED USE

This homogenizer is designed to be used in a laboratory/institutes to grind the samples such as plant leaves/seeds/root tissues, Animal tissues, yeast cells, Bacterial cells, small bone pieces, mammalian cells etc. The agitation motion provides better rupturing/grinding of samples for extraction of cell components for studying purposes. It is widely used in research laboratories& Institutes.

Note: *Before using the homogenizer, please read this user manual carefully. This usermanual is intended to assist with the operation and care of the unit only and not its repair. For repair please contact the supplier.*

3. FEATURES

- Agitation motion.
- Large digital display.
- Maximum speed of agitation upto 4550 RPM/~7.50 m/s
- Quick acceleration/deceleration time.
- Lid safety interlock.
- Convenient and easy user interface.
- User defined program upto 99
- Last run memory feature.
- Wide range of interval (pause) time.
- Countdown timer.
- Speed setting by RPM or m/s mode.
- Low noise.

4. STANDARD ACCESSORIES

- Power supply (adapter)
- 24 slots micro tube holder with finger plate
- Product user manual and warranty card

5. OPTIONAL ACCESSORIES

- 2ml screw cap tubes
- Homogenizing beads

Bead Type	Bead Size
Glass Beads	φ0.4-0.6 mm
	φ0.8-1.2 mm
	φ2.5-3.0 mm
Zirconium (SZS-52%)	φ1.0-1.2 mm
	φ1.4-1.6 mm
	φ2.8-3.2 mm
Zirconium (YTZ-94%)	φ1.0-1.2 mm
	φ1.4-1.7 mm
	φ2.6-3.3 mm
SS	φ2 mm
	φ3 mm

Note: *Has to be ordered separately (optional accessory)*

6. TECHNICAL SPECIFICATIONS

Number of Samples (Capacity)	1~24 samples (24 x 1.5/2 mL)
Agitation Speed Range (m/s)	0.80 m/s ~ 7.50 m/s (in steps of 0.05 m/s)
Agitation Speed Range (RPM)	490 RPM - 4550 RPM (in step of 30 RPM)
Number of Cycles	10
Run Time	1 second to 90 second (in 1 second increment)
Pause Time	10 second to 600 second (in 1 second increment)
Permissible Temp. Range	4°C to 40°C
Acceleration	≤ 6s
Deceleration	≤ 6s
Programmable (Stored)	99 Saved Programs
Running Noise	< 70db
Weight	32.5kg
Dimensions (W x D x H)	490 x 350 x 315mm

Power Supply	230 VAC/ 50Hz
Power Consumption	200 W

7. SAFETY PRECAUTIONS

- Never use the homogenizer in any manner not specified in this manual.
- Using equipment in any manner not specified in this manual or by the manufacturer, will void the warranty.
- Never move the homogenizer while operational.
- The tube holder and holder lid must always be securely fastened. If the homogenizer makes unusual noise during operation, the tube holder or tube holder lid fit needs to be checked. Switch OFF the device immediately by pressing STOP, check tube holder fit & fasten it well.
- The tube holder must be loaded symmetrically. Each tube should be counter balanced by another tube of the same weight.
- Do not use the homogenizer or tube holder that have not been correctly installed or damaged.
- Repairs must only be performed by authorized service technician.
- Using incorrect holder & wrong spare parts will void the warranty.
- Homogenizer may be used for the specified applications only. It
- must not be operated in a hazardous or flammable environment and must not be used to instrument explosive or highly reactive substances.
- If liquids are spilled in/on the chamber, the homogenizer must be cleaned carefully and properly before being used again.
- Prior to homogenization, the tubes should be visually inspected for material damage. Damaged tubes may not be used. This is because broken tubes can, in addition to sample loss, create imbalance which can result in further damage to the homogenizer and accessories.
- The maximum sample capacity must not exceed then the mentioned value in the specification table.
- Do not lean on the equipment. It may damage the equipment or the harm the operator.
- When moving the homogenizer from a cold room to a normal room, run the homogenizer for 30 minutes beforehand in the cold room to avoid condensation. Alternately, allow it to warm up in the lab for at least 3 hours before use, but do not plug in the instrument in order to prevent possible damage by condensation.
- Be sure to close the tubes lid tightly prior to homogenization. Open tubes lid

can be torn off during homogenization and can damage the instrument or the user.

- tube holder and holder lid are high graded components which are subject to extreme mechanical strain. Even slight scratches and tears can lead to serious internal material damage. Ensure to check the holders for any signs of damage before use. tube holder and holder lid showing visible signs of corrosion or mechanical damage should not be used, contact your local supplier or mfg for replacement tube holder& parts.
- Do not fill tubes while they are in the holders. Liquid spillage may harm the device.
- In the event of contamination caused by aggressive agents, the holder& inner chamber must be cleaned immediately using a natural cleaning liquid (like water). This is particularly important for the bores of the tubes. If any damage is seen, contact the service technician.
- Before using cleaning or decontamination methods, other than those stipulate by the manufacturer, contact the manufacturer to ensure that the intended method will not damage the homogenizer.
- The power adapter given with instrument unit is designed to use for that particular homogenizer. Do not use any other power adapter, using any other power adapter may damage the instrument and will void the warranty.

8. INSTALLATION

Open the box, then remove the packaging and gently take the instrument out of the box. Before using this instrument, open the instrument& remove all packaging from the chamber & ensure tube holder is firmly tightened. The user manual and accessories should be kept near the instrument. Please keep all packaging in safe storage for at least 2 years for warranty purpose.

MOUNTING

Place the instrument on a flat and leveled surface; ensure that the four feet of this instrument stand on the surface firmly. Avoid installing on a slippery surface or surface prone to vibration.

- Ideal ambient temperature is $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$; avoid placing the instrument in direct sunlight.
- Keep clearance of at least 10 cm on both sides and at least 30 cm behind it to guarantee cooling efficiency.
- Keep away from heat or water to avoid sample temperature issues or instrument failures.
- Do not place the instrument in any area where operating the unit maybe

difficult.

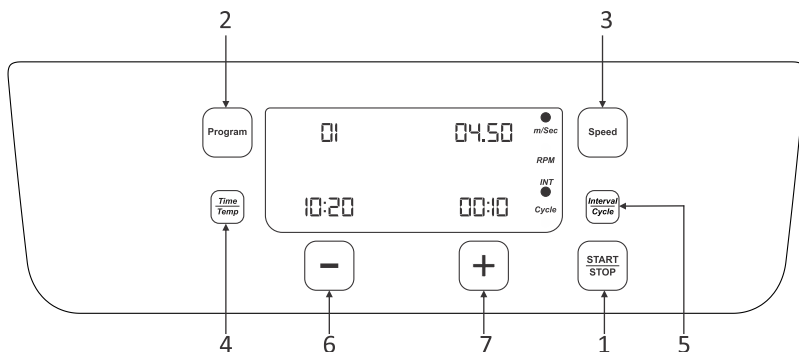
CONNECTING POWER ADAPTER

- Connect one side of power adapter to rear side of instrument and other to supply as shown in the figure below.
- Insert the power cord at the back of instrument in power input socket (shown in picture). Ensure the power switch is OFF while connecting the power adapter.
- If matched correctly the plug will go in easily without much force (do not try to force the plug in if it is not matched properly).

9. STANDARD PARTS LISTING

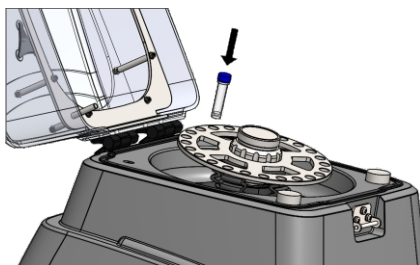


10. USER INTERFACE & DISPLAY



Button No	Indication	Function
1	<u>Start</u> Stop	To start program To stop running program
2	Program	To set program number, It can be set from 1 to 99 programs.
3	Speed	To set speed in m/s or RPM, it can be adjusted from 0.80 to 7.50 m/s (490 to 4550 RPM) in 0.05 m/s(30 RPM) increment
4	Time	To set run time in seconds.it can be set from 1 to 90 sec. in 1 sec. Increment.
	Temp	To show temperature of motor in Celsius
5	Interval	To set time interval in seconds between each cycle. it can be set from 10 to 600 seconds in 1 second increment,
	Cycle	To set the number of times cycle is repeated, it can be set from 1 to 10 cycles,
6	+	Increase the value of selected parameters
7	—	Decrease the value of selected parameters

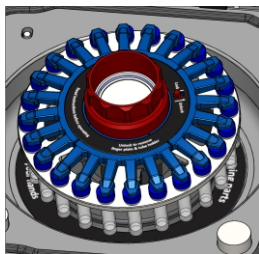
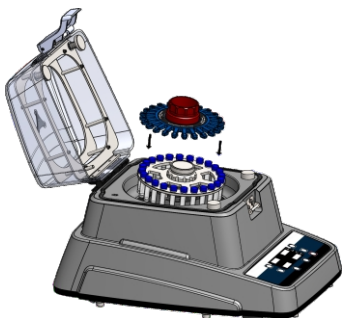
11. TUBE INSTALLATION IN TUBE HOLDER



TUBE INSTALLATION

TUBE HOLDER LID INSTALLATION

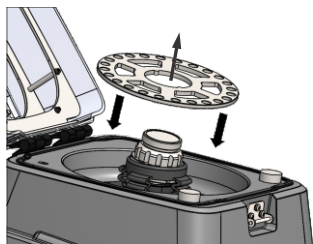
Screw down tight to place holder lid on tube to hold them undisturbed while operation



NOTE: Always use recommended accessories for best results and product safety.

TUBE HOLDER INSTALLATION

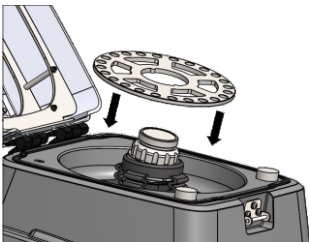
TUBE HOLDER REMOVAL AND REPLACEMENT PROCESS



The tube holder comes pre-installed with the instrument. If you want to remove or replace the tube holder, follow the instructions below.

- Open the instrument lid, loosen the tube holder by unscrewing tube holder lid anti clock wise.
- Pull the existing holder out of motor shaft vertically. And replace the tube holder with new one or replace the holder after cleaning.

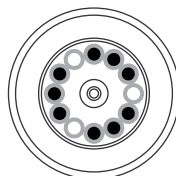
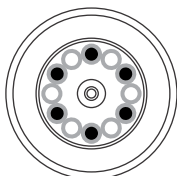
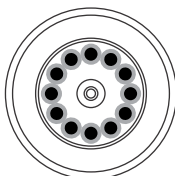
Removal arrows (upward/out ward)



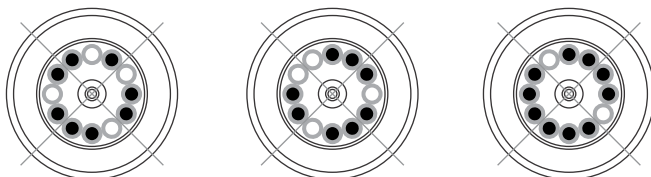
Note: 1) Check the tube holder is firmly tightened before running the next program.

2) Do not remove or loosen the tube holder before machine stops

BALANCING THE TUBE HOLDER



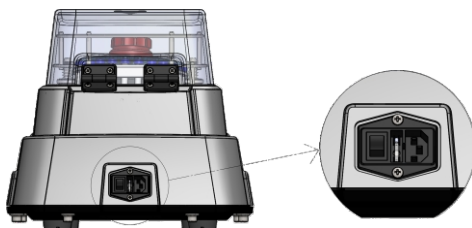
- Always balance the tube holder before homogenization. Above are examples of properly balanced tube holders.
- The samples in the tubes should be of equal volume.
- If the tubes are not loaded correctly - vibration or imbalance can occur which can cause serious damage to the instrument.
- Incorrect method of loading tubes in instrument tube holder :



12. OPERATING THE INSTRUMENT

STARTING THE INSTRUMENT

After connecting the power adapter, switch ON the power at the rear side of near the AC Power input. the instrument. Make sure to check the tube holder fit before use. Instrument will not operate with an open lid. If lid is open, Message Show “LID OPEN” after closing lid all keys works and Programming mode displays the last program run before turn off the unit.



Note: Maintain a gap of 3 seconds between turning off and turning on the instrument. DO NOT turn off and turn on the instrument instantly.

After installing tube in side the tube adapter (as shown above). Close the lid.

SETTING PROGRAM

By pressing program button, user can select program number which is pre saved by user and user can also define new program with different parameters, program number on display can change by pressing ‘+’ & ‘-’ button. Program will display blink 3 times, it is the indication of selection of the program number. Single press ‘+’ or ‘-’ button it will increase or decrease 1 program respectively. By longpress the button values change rapidly (1,2,3,4,5.. and go on & same in decrements 99,98,97,96,...) After changing the program (program number) display will blink 3 time again, It is the indication of saving the value. User can save up to 99 programs with different speed, run time, interval time, number of cycles.

SETTING THE SPEED

1. After setting program, press the "SPEED BUTTON" to select the speed setting. By pressing Speed button ,User can select between speed in m/s or RPM, when LED of m/sec is on user can change speed in m/sec by pressing '+' & '-' button. When LED of RPM is on user can change speed in RPM by pressing '+' & '-' button. By pressing speed button again user can change speed from m/sec to RPM or RPM to m/sec.
2. Single press of '+' or '-' button when LED of RPM is ON, it will increase or decreases speed 30 RPM respectively. By long press these buttons value change rapidly 490,520,550...and so on, similar will be for decrements 4550,4520,4490...RPM, similar will be operation when LED of m/sec is ON, but it increase or decrease by the value of 0.05 m/sec
3. After changing the Speed (RPM value or m/sec value) display will blink 3 times, it's the indication of saving the value.
4. User can change speed when he set program, he can not change speed during operation(Run) of machine.
5. **Speed range:** 0.80-7.50 m/sec or 490-4550 RPM.

SETTING THE TIME

By pressing TIME button, user can change run time(seconds), values on time display can change by pressing '+' & '-' button. After changing the run time (seconds) display will blink 3times again, it is indication of saving the value. Single press "+" or "-" button it will increase or decrease (1 second) respectively . By long press these buttons value will change rapidly (1,2,3,4...so on and similar for decrements 90,89,88,87.... so on)User can change run time when he set program, he can not change run time during running of machine.

- **Time range:** 1 sec to 90 sec.

SETTING THE INTERVAL

By pressing Interval/cycle button, user can change interval time (in seconds) between each cycle & Number of cyclic repeats alternatively. When LED of INTERVAL is on user can change values of interval time(second) by pressing '+' & '-' button. When LED of CYCLE is on, user can change values of number of cycle repeated by pressing '+' & '-' button. Value on display will blink 3 times, it is the indication of saving the value. Single press of '+' or '-' button when LED of INTERVAL is ON, it will increase or decrease interval time 1 sec respectively. By long press of buttons '+' or '-' value will change rapidly- 10,11,12,13...so on and similar for decrements 600,599,598,... Similarly when LED of CYCLE is ON, but it increase or decrease value by 1 cycle at each press user can change interval time & number of cycle repeated while setting program, user cannot change interval time

& number of cycle repeated during operational run of machine.

Interval Time range: 10 sec to 600 sec

Cycle repetition range : 1 to 10 cycle

MOTOR TEMPERATURE

By long press of TIME BUTTON, user can check motor temperature in Celsius 7.6

(+) & (-) BUTTONS :

Increment (+) and Decrements (-) buttons are used to increase or decrease speed(m/sec & RPM),run time, interval time, cycle value.

EXAMPLE :

To Set & run program number 8,with speed 4550 RPM, run time 90sec,interval time10sec,cycle repeat for 10 times.

- Switch on Instrument by pressing ON/OFF switch near AC power supply.
- Set test samples(tubes)& Close lid
- Press PROGRAM button set program number 8 using (+) or (-)button. waiting for blinking program display 3 times,
- Press SPEED button when LED of RPM is on change RPM value 4550 by using(+) or (-) button. Waiting for setting save blinking values 3 times.
- Press TIME button to set run time 90 sec by using (+) or (-) button. Waiting for setting save blinking values 3 times.
- Press INTERVAL/CYCLE button, when LED of INTERVAL is ON set interval time 10 sec by using (+) or (-) button. Waiting for setting save blinking values 3 times.
- Press INTERVAL/CYCLE button again, LED of CYCLE is ON, set 10 cycle by using (+) or (-) button, waiting for blinking INTERVAL/CYCLE display 3 times.
- Press START button for operation to begin.
- Press stop button whenever operation wanted to be stopped.

13. MAINTENANCE AND CLEANING

1. The tube adapter and the outside of the instrument should be cleaned regularly with a moist cloth.
2. Ensure that while cleaning the unit it is not plugged in.
3. Wear protective gloves and safety glasses while operating and cleaning the device.
4. The brushless motor in the instrument does not require routine maintenance. Any required service should be performed by authorized, qualified personnel only. Repairs performed by unauthorized personnel may void the warranty.

5. Always keep the instrument housing, tube holder chamber, tube holder and tube holder accessories clean. All parts should be wiped down periodically with a soft cloth. For more thorough cleaning, use a neutral cleaning agent (Ph between 6 and 8) applied with a soft cloth. Excessive amounts of liquid should be avoided. Liquid should not come into contact with the motor.
6. After cleaning, ensure that all parts are dried.
7. It is important to regularly clean the tube holder.
8. If the tube holder chamber needs cleaning, clean it with a cloth or a sponge moistened with a neutral detergent solution (like water).
9. Do not place the tube holder into the cleaning solution!
10. If corrosive, toxic or pathogenic bacteria are accidentally spilled on the tube holder or in the chamber, the instrument must be decontaminated thoroughly.

Warning! This product does not contain bio-seals as per IEC/EN/CSA 61010-2-20 and cannot provide any level of containment in case of a spill or release of toxic, radioactive, or pathogenic micro-organisms thus these materials are not recommended to be used in this product.

14. TROUBLESHOOTING

This instrument has a self – diagnostic function. If a problem occurs, an error/warning code will be displayed on the display screen and the operator can determine the malfunction with the warning code below.

Poblem	Possible cause	Action
No Display on Screen	No power on the main power plug	Check power supply and plugged properly
	On/Off button broken	Change button
	Faulty fuse	Change fuse(250V 5A)
	Others	Contact suppliers
Instrument cannot run	Motor temp above 70°C	Running recovered till temperature drops to below 60°C
	On/Off button broken	Contact suppliers
	Faulty Controller	
	Faulty Motor	
	Faulty limit switch	
Abnormal running noise	Faulty Bearing	Contact suppliers

Keys don't work	Plug connector loose	Contact suppliers
	Faulty key	
	Lid Open	Close lid
	"Error : Ot"	Running recovered till temperature drops to below 60°C
Fan not Working	No power	Check main Voltage, Make Sure that unit is plugged in properly, Check and replace fuses if blown,
	Faulty Fan	Contact suppliers
"Error : 52" Displayed	Motor Stuck or not received any feedback from motor	Restart instrument or Contact suppliers
Error : Ot" Displayed	Motor temp above 70°C	Running recovered till temperature drops to below 60°C
	Fan not work	Check main power supply or contact supplier
"Error : OL" Displayed	Overload	Switch off main supply and start again. Or Contact suppliers
Message : LID OPEN	Lid is not properly closed	Close lid properly
	Faulty limit switch	Contact suppliers
Tube Leakage	Speed is too high, high temperature or pressure inside the tube	Reduce processing time & speed.

IMPORTANT NOTE:

1. If system gets hung up or gets hot due to over current, turn OFF & turn ON (restart) the instrument and check it again.
2. Maintain a 3 second gap between restarting the instrument. Instant ON-OFF can lead to a reset, erasing last run memory.
3. If the motor gets hot due to which there will be a fluctuation in speed value then allow the instrument to cool for atleast 30 minutes. Do not do any operation for 30 minutes

15. WARRANTY STATEMENT

This product is warranted to be free from defects in material and workmanship for a period of two (2) years from date of purchase. Your product will be duly repaired upon prompt notification in compliance with the following conditions

This warranty is valid only if the product is used for its intended purpose and within the guidelines specified in this instruction manual. This warranty does not cover damage caused by accident, neglect, misuse, improper service, natural forces or other causes not arising from defects in original material or workmanship. This warranty does not cover any incidental or consequential damages, commercial loss or any other damages from the use of this product.

The warranty is invalidated by any non-factory modification, which will immediately terminate all liabilities on us for the products or damages caused by its use. The customer shall be responsible for the product or use of products as well as any supervision required for safety. If requested the products must be returned to the distributor in well packed and insured manner and all shipping charges must be paid.

Note: *Some states do not allow limitation on the length of implied warranties or the exclusion or limitation of incidental or consequential damages. This warranty gives you specific legal rights. This warranty is given expressly in lieu of all other warranties, expressed or implied.*

The purchaser agrees that there is no warranty of merchant-ability or of fitness for any intended purpose and there are no other remedies or warranties, implied, which extend beyond the description on the face of the agreement. This warranty is only applicable to the original purchaser.

Products received without proper authorization will not be processed for warranty or service. All items returned for service should be sent with postage prepaid in the original packaging or other suitable packaging, padded to avoid damage. We will not be responsible for damage incurred by improper packaging.

Note: *This warranty is valid only if the warranty is registered with the supplier within 30 days from the date of purchase.*

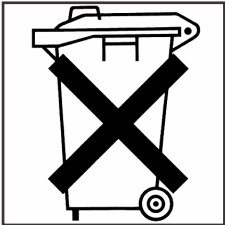
16. PRODUCT DISPOSAL

In case the product is to be disposed of, the relevant legal regulations are to be observed.

Information on the disposal of electrical and electronic devices in the European Community

The disposal of electrical devices is regulated within the European Community by national regulations based on EU Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). According to these regulations, any devices supplied after 13.06.05 in the business to business sphere, to which this product is

assigned, may no longer be disposed off in municipal or domestic waste. They are marked with the following symbol to indicate this.



As disposal regulations within the EU may vary from country to country, please contact your supplier if necessary.

For your reference, make a note of the serial number, date of purchase and supplier here.	
Serial No.	Purchase Date
Supplier	

Neuation Technologies Pvt. Ltd.

Plot No. 15, GIDC Electronic Park SEZ Kolavada Road, Gandhinagar – 382026, Gujarat, India

Website: www.neuation.com