

OPERATION MANUAL



LLG-uniTEXER 4

Thank you very much for purchasing
this LLG-uniTEXER 4.

Please read the following instructions carefully
and always keep this manual within easy reach.

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1. Product Description

1.1 Introduction

This LLG-uni*TEXER* 4 is designed for laboratory mixing. It assures the highest performance in terms of speed, reliability, precision and safety. LLG-uni*TEXER* 4 has a variable speed with digital control that allows low RPM start-up for gentle shaking and high speed mixing for vigorous vortexing of samples.

1.2 Intended use

This LLG-uni*TEXER* 4 is a general laboratory product. It is intended for application where vortexing of single or multiple tubes is required.

1.3 Features

1. Continuous touch operation
2. Adjustable speed ranging from 300 to 4200 RPM
3. Brushless DC motor for maintenance free long life
4. Orbital diameter of 4 mm
5. Built in counter balance for steady and safe operation
6. Variable timer setting from 1 to 999 minutes for continuous operation
7. Digital display: toggles between speed and time every 5 seconds
8. Programmable pulse mode
9. Press activated pulse function
10. Robust construction for stable operation
11. Silent operation
12. Universal power supply
13. Broad range of accessories available

1.4 Technical Specifications

Motor	Brushless DC Motor
Orbital Diameter	4 mm
Speed	Variable 300 - 4200 RPM
Run Time	1 minute to 999 mins & infinite mode
Speed Accuracy	± 10 RPM
Maximum Load Capacity	500 gm
Different modes	Continuous & Touch mode
Ambient Temperature	5 to 40 °C
Dimensions (W x D x H)	205 x 138.5 x 136 mm
Weight	2.8 Kg
Input Voltage	24 V ∓ 0.9 A
Power Consumption	20 W

1.5 Scope of delivery

Scope of delivery:

1. LLG-uniTEXER 4 digital
2. Power supply
3. Standard cup head (pre-installed)
4. Round disk attachment
5. User Manual

2. Safety Precautions

1. Do not use the unit if it shows any sign of electrical or mechanical damage.
2. Do not use the LLG-uniTEXER 4 in hazardous atmosphere or with hazardous material for which the unit is not designed.
3. Always used the LLG-uniTEXER 4 on a level & stable surface for best performance and maximum safety.
4. Do not the lift LLG-uniTEXER 4 with the attachments, as every attachment including the cup head are designed to be pulled off for interchanging.
5. Do not rotate or give full rotation to the attachments (cup head, universal attachment, etc) attached to the shaft body.
6. Clean the unit with a damp cloth using a mild detergent only. Do not use chemical cleaning agents.
7. If liquid is spilled on the unit, first disconnect unit from the external (main) power supply and then clean the unit with damp cloth.
8. Do not use accessories which are not recommended by the manufacture as it may affect the performance.
9. The instrument is designed to be used in the laboratory environment.
10. Liquid spillage may harm the unit. Do not fill microtubes, microplates or flasks while they are attached to the LLG-uniTEXER 4.
11. Refer to the recommended maximum speed for specific attachments for safe usage. (Refer table on page: 7).

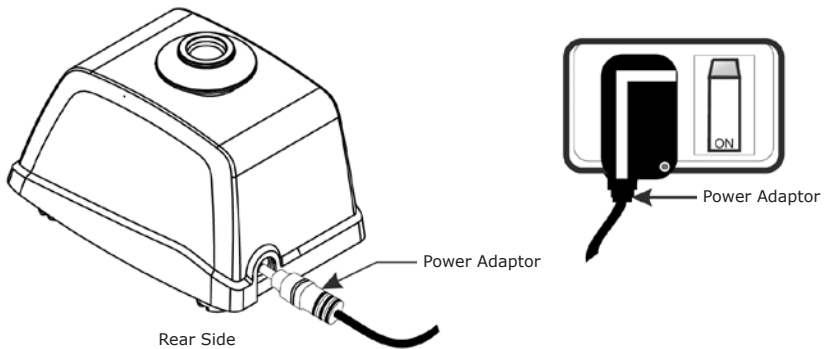
3. Installation

Open the box, open the inner packaging and gently take the LLG-uniTEXER 4 out of the box. Before the first use ensure that all the packaging is removed and the cup head is firmly tightened before using the product. The user manual and accessories should be kept near the unit for at least three years for warranty purposes.

3.1 Location

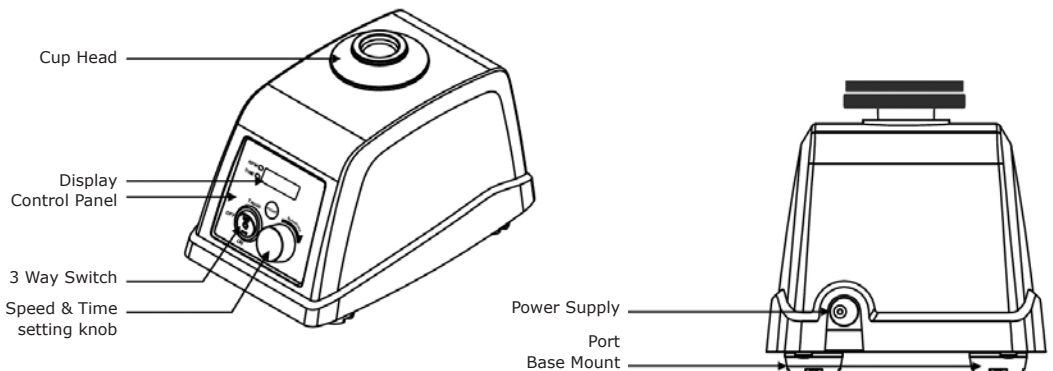
Take the unit out and place it on the leveled & stable surface near the grounded electrical outlet. The surface should be clean and free from dust to ensure that the feet grip the surface firmly. Keep a clearance of 10 cm on all sides of the unit for proper ventilation. Keep the unit away from heat & direct sunlight to avoid sample temperature issues.

3.2 Connecting the Power Adaptor

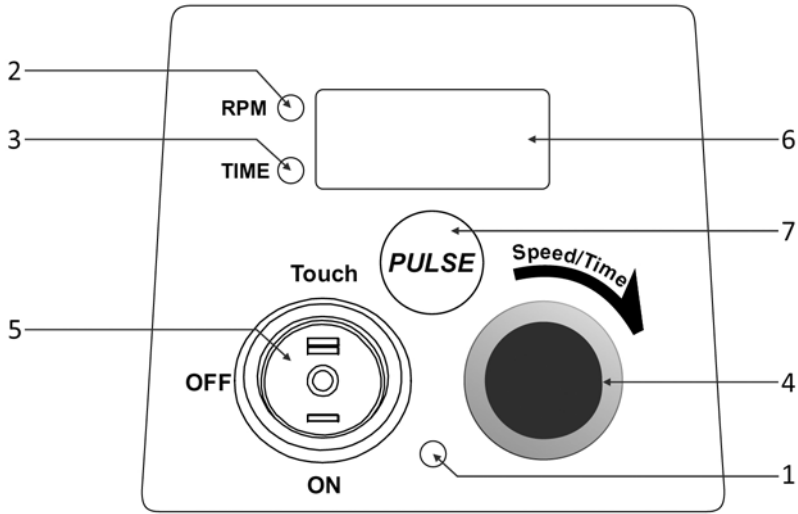


Connect one end of the power adaptor pin to the rear side of the unit and another end to main supply as shown in the above figure. Make sure that the main switch is not switched "ON" until the adaptor is connected to both the side.

4. Standard Parts Listing



5. User Interface and Display



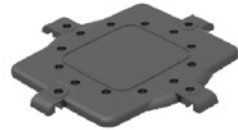
No.	Name/Symbol	Function
1	Power LED	The power led shows the status of mains power. Glow - power connected, No Glow - power disconnected
2	Speed LED	The speed LED will glow when the speed value is shown or selected.
3	Time LED	The Time LED will glow when the time value is shown or selected.
4	Speed & Time Setting Knob	Press the knob to toggle between speed & time selection mode. Rotate clockwise to increase & counter clockwise to decrease speed & time value.
5	3 way Switch (Mode Selection)	The rocker switch is used to select different mode in the LLG-uniTEXER 4 The modes are "OFF" (stand by), Continuous and Touch operation.
6	Display	The digital Display shows speed value, time value and pulse parameters.
7	Pulse	The pulse button is activated only on continuous mode. In pulse mode, power LED will start blinking giving indication of activated pulse mode. In Pulse mode user can set ON & OFF time of vortex action as per their need.

6. Optional Attachments and its Installment

The standard attachment is normally used for vortexing samples in tubes. The LLG-uniTEXER 4 can accommodate optional attachments when combined with the optional universal attachment. Optional attachments include the universal attachment, which can combine with other foam attachments and can be used for mixing samples in microplates, microtubes & flasks.

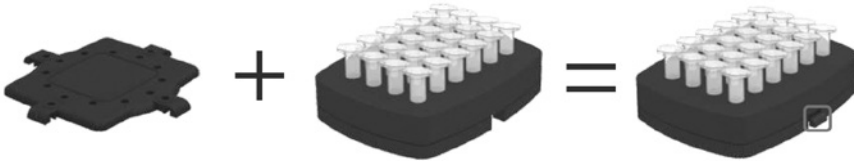


Standard Attachment



Universal Attachment
Not in the scope of delivery,
will be delivered with the attachment.

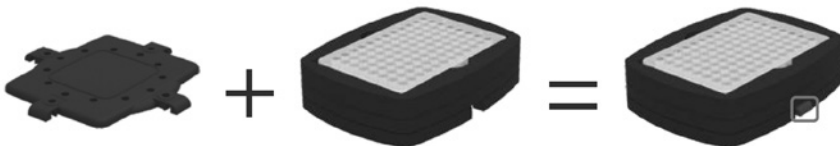
The below optional foam attachments along with the universal attachment can be used for mixing samples in microplates & microtubes (1.5/2.0 ml). First attach the universal attachment, place the tubes in the foam sheet & then combine it with the universal attachment.



Universal Attachment

24 Tubes Foam attachment

Note: The 24 tube foam attachment can be operated with maximum speed of 700 RPM with the fill not more than 75 % of the sample. Do not fill tubes while they are in the foam attachment, liquid spillage might harm the attachment or unit.



Universal Attachment

Microplate Foam attachment

Note: The microplate foam attachment can be operated with a maximum speed of 700 RPM with the fill not more than 75 % fill of microplate. Do not fill the microplate while it is in the foam attachment, as liquid spillage might harm the attachment or unit.

The below additional rubber attachments when in Combination with the universal attachment can be used for mixing samples in 250 ml flask.

First always attach the universal attachment, then place the flask on the universal attachment & tighten it with the rubber attachment firmly as shown in the below figure.



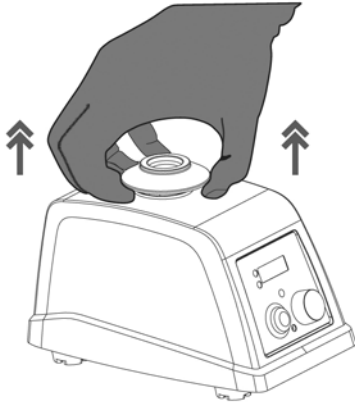
To tighten the flask, place the rubber attachment as shown in the above figure and lock it with the universal attachment by stretching the rubber attachment.

Note: The 250 ml flask used with these rubber attachment can be operated with maximum speed of 400 RPM with the fill not more than 250 ml of sample. Care needs to be taken while attaching or filling the flask with the sample to avoid liquid spillage, causing damage to the user or unit.

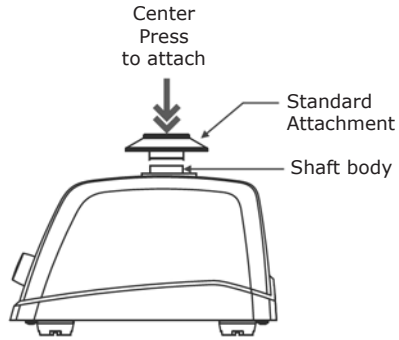
Max. Recommended Speed Table

Attachments	Image	Max. Fill	Max. Recommended Speed
Microtubes Foam Attachment		75 %	700 RPM
Microplate Foam Attachment		75 %	700 RPM
Flask Rubber Attachment		250 ml	400 RPM

To remove the standard attachment, pull the standard attachment up with one hand as shown in below figure. To attach, place the standard attachment on the shaft body & center press the attachment as shown in below figure until it snaps in place. Ensure that it is attached firmly with the shaft body.



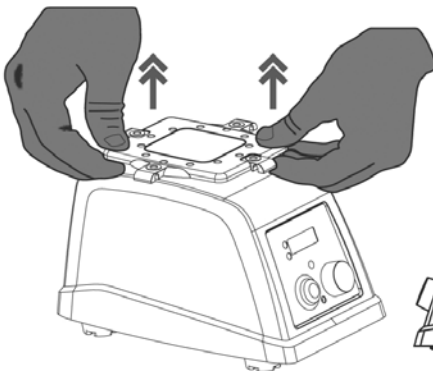
Removing Standard Attachment



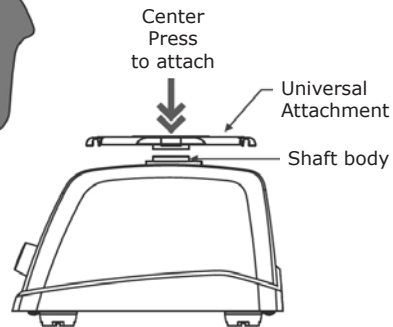
Attaching Standard Attachment

Note: Do not rotate the universal attachment or any attachments attached to the shaft body.

To remove the universal attachment, pull the universal attachment up with both hands as shown in below figure. To attach, place the universal attachment on body shaft & center press the attachment as shown in below figure until it snaps in to place. Ensure that it is attached firmly with the shaft body.



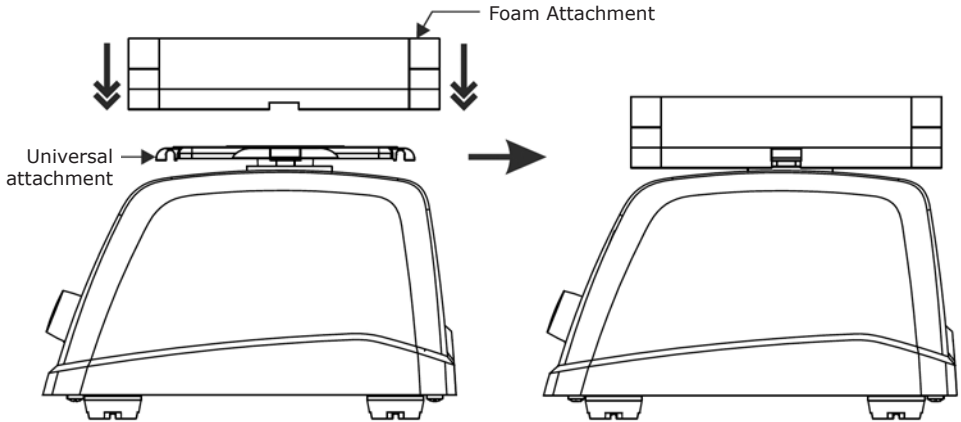
Removing Universal Attachment



Attaching Universal Attachment

Note: Do not rotate standard attachment or any attachments attached to the shaft body.

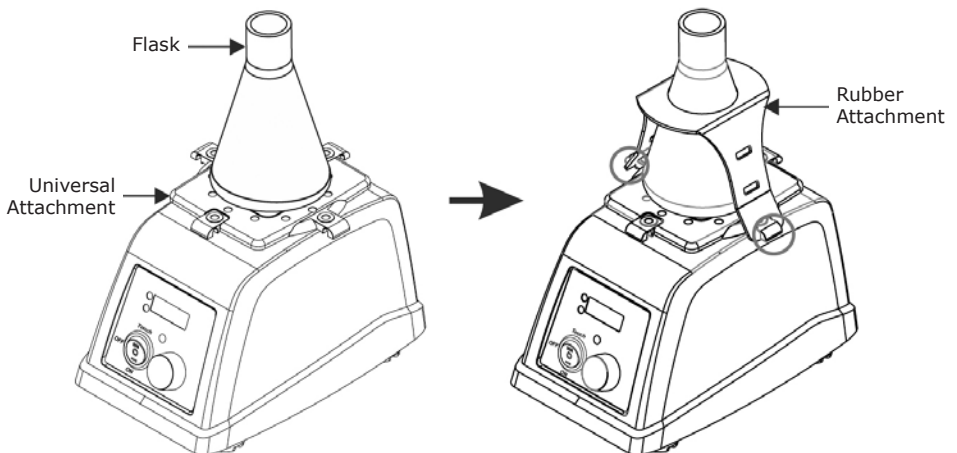
To attach the microtube or microplate foam attachment, first install the universal attachment then place the foam attachment as shown in the image below. Ensure that foam attachment is securely placed on the universal platform.



Place the microplate or microtubes first in the foam attachment and then place the foam attachment on the universal attachment attached to the LLG-uniTEXER 4.

Inserting filled microplate or microtubes in the foam attachment attached to LLG-uniTEXER 4, can lead to spillage of samples.

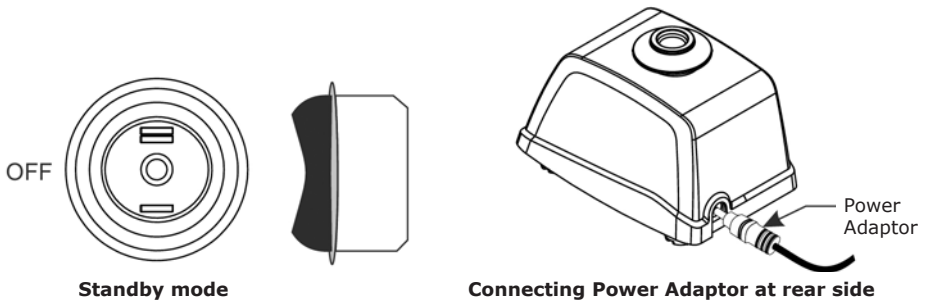
To attach the flask, first attach the universal attachment then place the flask on it and then tighten / lock with the rubber attachment. Ensure that it is securely placed on the universal platform.



7. Operation

7.1 Connecting Power Adaptor

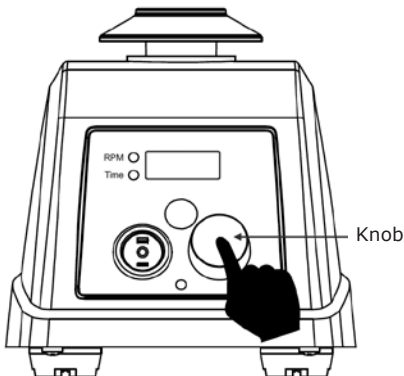
Always connect the power adaptor to the unit first & then to the adaptor port. Before connecting to both ends, ensure that the LLG-uniTEXER 4 is in STANDBY mode and the cup head (attachment) is firmly tightened with the shaft body. Below is the image showing the STANDBY mode of the LLG-uniTEXER 4.



Connect the power adaptor at the rear side of the LLG-uniTEXER 4 as shown in the above image.

7.2 Setting Speed and Time

Always set the required speed and time first before doing any mixing operation. Rotate the knob to select and set the speed value. By default, speed will be selected every time the knob rotates. LED adjacent to "RPM" will glow while setting speed. The minimum and maximum speed of LLG-uniTEXER 4 is 300 RPM and 4200 RPM respectively.



To activate the timer, press the knob once and the LED adjacent to "Time" will glow. Rotate the knob clockwise to increase value & counter-clockwise to decrease value. The timer can be set from 1 min to 999 mins and a continuous/infinite mode. Infinite time mode is shown by symbol '∞'.

7.3 Standby, Touch & Continuous Mode

Placing the 3 way switch in the STANDBY position It will keep the LLG-uniTEXER 4 in an OFF state i.e. it will not operate as TOUCH or CONTINUOUS mode. Below is the position of the 3 way switch showing the LLG-uniTEXER 4 is in STANDBY mode. It is recommended to use STANDBY mode while replacing attachments or when not in use. It is recommended to used STANDBY mode while setting operation parameters.



Press the 3 way switch up towards the "Touch " side to enable the TOUCH mode. The TOUCH mode is generally used with the standard attachment. In TOUCH mode, vortex action will start only when the cup head is press. Below is the position of the 3 way switch showing the LLG-uniTEXER 4 is in TOUCH mode.



Press the 3 way switch down towards the "ON" side to enable the CONTINUOUS mode. In CONTINUOUS mode, the vortex action will start automatically (without pressing cup head) at the set speed and time. Below is the position of the rocker switch showing the LLG-uniTEXER 4 in CONTINUOUS mode.

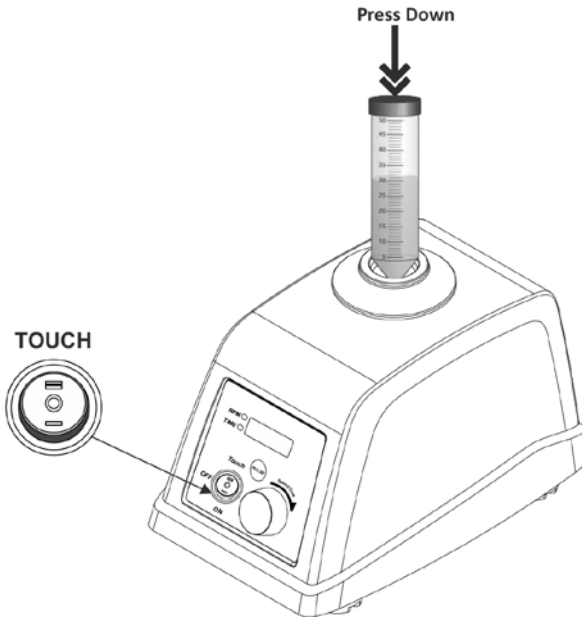


Note:

- 1) CONTINUOUS mode is generally used with attachments (refer chart on page7).
- 2) STANDBY mode is generally used while setting parameters or when not in use.

7.4 Touch Mode Operation

Before operating, check that the upper cup head is firmly tightened to the shaft body. Set the required speed using the knob in STANDBY mode and select the "TOUCH" mode using the 3 way switch. For touch mode operation, gently press and hold the cup head using the tube as long as you want it to run. Release to stop operation. The below image shows the operation in touch mode.



Note: "Time" value cannot be set in "TOUCH" mode as it operates only when the cup head is pressed. On release, operation stops.

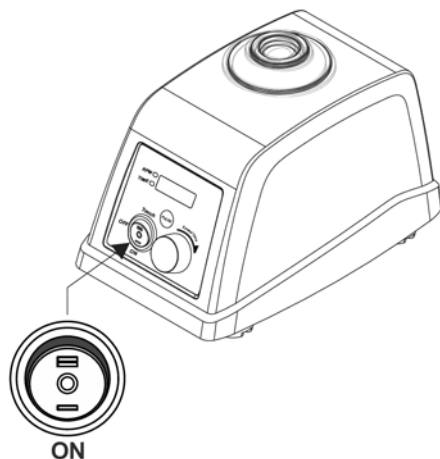
7.5 Continuous Mode Operation

Before operation, keep the LLG-uniTEXER 4 in standby mode and set the operation parameters. Check the attachment you are using is firmly tightened with the shaft. Select the "ON" mode to start continuous mode operation. The speed value will blink for 3 seconds giving indication of set speed. In Continuous mode, the vortex action will start automatically (without pressing the cup head) at set speed and time.

In continuous mode, set RPM & remaining time will be displayed alternatively.

In continuous mode, at any time, the user can modify the speed by rotating the knob and can also modify time by pressing the knob once then rotating it.

For the universal attachment, make sure to fill the liquid or samples before placing the attachments (microtubes foam / microplate Foam / Flask rubber attachment) on LLG-uniTEXER 4.



Max. Recommended Speed for different Optional Attachments in Continuous Mode			
Attachments	Image	Max. Fill	Max. Recommended Speed
Microtubes Foam Attachment		75 %	700 RPM
Microplate Foam Attachment		75 %	700 RPM
Flask Rubber Attachment		250 ml	400 RPM

7.6 Pulse Mode

The pulse mode is used for intermittent shaking. In this mode the shaking action works on run-stop-run mode. This LLG-uniTEXER 4 comes with default pulse mode and user programmable pulse mode. In default pulse mode, the ON & OFF time are pre-set for 5 seconds each and in the programmable pulse mode, the user can set the ON time & OFF time as per requirement.

7.6.1 Default Pulse (ON & OFF Time Stable)

Pulse mode can be activated in the continuous mode only. To activate pulse mode, press the pulse button under continuous mode. Once activated, the power LED will start blinking indicating the activation of pulse mode. In default Pulse mode, vortex operation remains ON for 5 seconds and OFF for 5 seconds.

7.6.2 Programming Pulse (Setting ON & OFF Time)

This vortex has a programmable pulse mode in which ON time & OFF time can be modified. In this mode, users can select ON time & OFF time alternatively under continuous mode. Below is the step by step process to use this feature:

1. Activate pulse mode by pressing pulse button. Once activated, power ON LED will start blinking.
2. Press the knob to select the ON time and rotate to modify ON time value. When the ON time is set, press the knob again to select the OFF time and rotate to modify the OFF time value.
3. Press the knob once again to start the pulse mode operation with the modified ON & OFF time values. The user can set the ON & OFF time between 1 sec to 99 secs.

7.6.3 Press Activated Pulse Function

The press activated pulse function is used when the user wants to select a specific ON time for repeat operations activated by touch/press. Set the ON time as mentioned above.

For OFF time, set it as infinite ∞.

For example: 10 similar samples require vortex action at X speed for 8 seconds. So, set 8 seconds ON time and infinite (∞) OFF time under user programmable pulse mode. Once the 8 seconds for one sample is over, take another sample, press & hold cup head to start another 8 seconds of vortex action. Follow this process for all 10 similar samples.

Note:

1. To reset or modify the pulse time value, restart the pulse mode (i.e. turn off & turn ON).
2. It is recommended to use the pulse mode with the standard attachment.
3. Default and programmable pulse mode can be used with the universal attachment only if the maximum speed of universal attachment is taken into consideration to avoid spillage.
4. It is not advisable to use the press activated pulse mode with the universal attachment.

8. Maintenance and Cleaning

1. Always keep the LLG-uniTEXER 4 & its accessories in a safe storage location and clean periodically with moist cloth. After cleaning, ensure that all parts are dry before re-use
2. Ensure that while cleaning the unit is not plugged in.
3. The brushless motor in the LLG-uniTEXER 4 requires no routine maintenance. Any required service should be performed by authorized, qualified personnel only. Repairs performed by unauthorized personnel may void the warranty.
4. Do not try to pull the LLG-uniTEXER 4 with attached accessories.
5. Do not try to rotate the attachments attached to modify the shaft body.
6. Do not use the LLG-uniTEXER 4 & its accessories in direct sunlight or under water.

9. Ordering Information and Accessories

LLG-uniTEXER 4, with universal plug	6.263 500
Standard cup head for conical tubes	6.263 501
Round Disk attachment	6.263 502
Microplate attachment for one 96 well plate	6.263 503
Tube attachment for 24 tubes	6.263 504
Flask holder attachment for 250 ml Erlenmeyer flasks	6.263 505

10. Warranty

This product is warranted to be free from defects in material and workmanship for a period of three (3) years from date of purchase.

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 does not cover damage to paint or finish and defects or damages caused by physical and chemical abuse or normal wear and tear. The warranty is invalidated by any nonfactory modification, which will immediately terminate all liabilities on us for the products or damages caused by its use. The buyer and its 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.

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

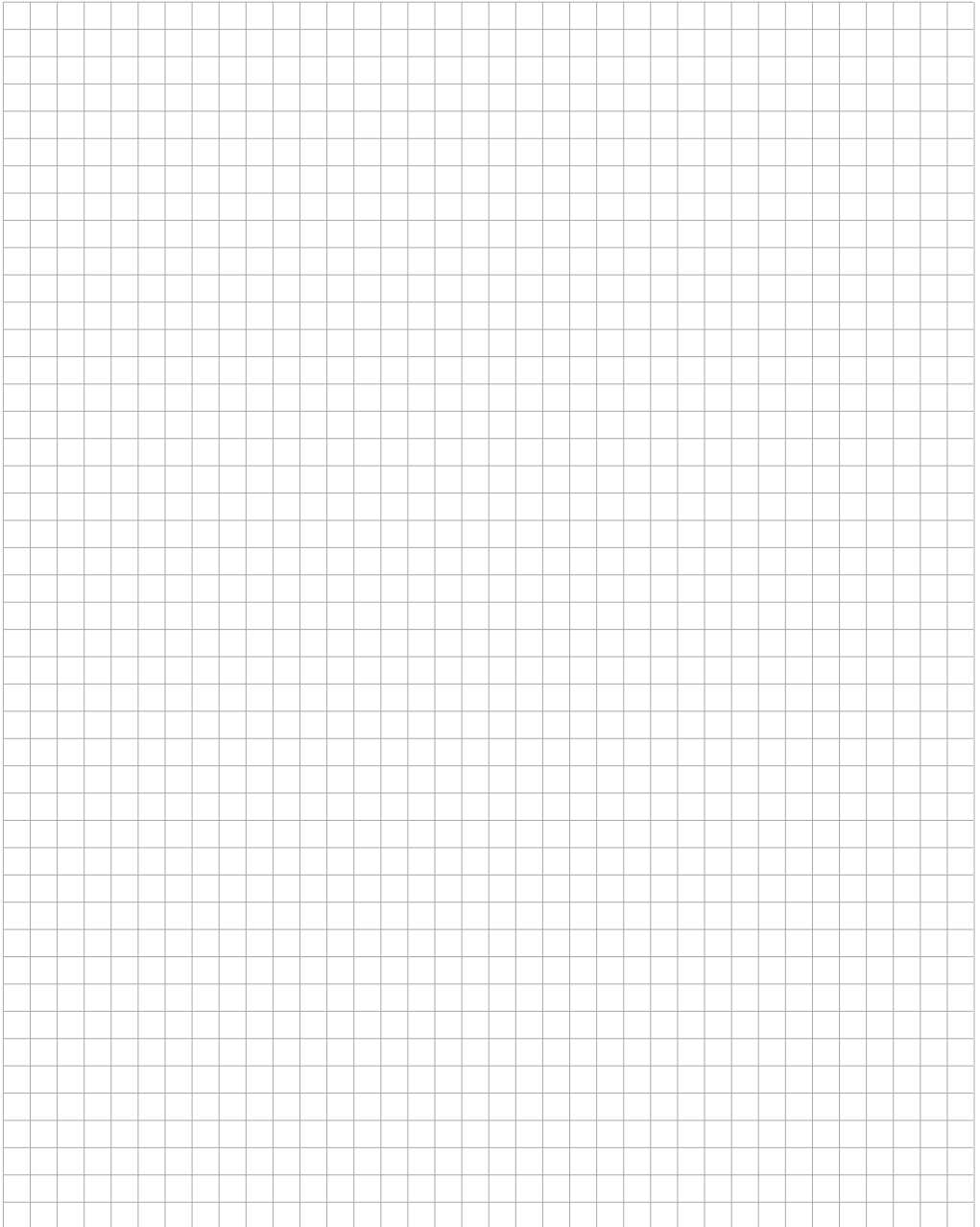
The disposal of electrical devices is regulated within the European Community by national regulations based on the European Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). According to these regulations, any devices supplied after 13.06.2005 in the business to business sphere, to which this product is assigned, may no longer be disposed of 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.

PRODUCT DISPOSAL



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

Notes

A large, empty grid of small squares, intended for taking notes. The grid consists of approximately 30 columns and 40 rows of squares.

Notes

A large grid of graph paper, consisting of 20 columns and 30 rows of small squares, intended for taking notes.



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