



UPHO

ULTIMATE HOMOGENIZER

USER MANUAL



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1. Precautions

Please read, understand and practice the following precautions when operating instructions your UPHO.

Know the limitations and hazards associated with the use of this equipment.

- Do not operate this equipment in an environment where other unshielded devices are being used, that radiate electromagnetic radiation.
- Do not use sharp objects such as a pencil point or ballpoint pen to interact with the touch screen, as damage may result. Please use a suitable soft point stylus or your finger tip.
- This equipment should only be operated in temperatures between 10° C to 40° C, transported and stored in temperatures between 0° C to 50° C, with relative humidity less than 70%.
- Do not disassemble, modify or remodel the unit or accessories.
- This device should be kept out of the reach of children.

2. Safety Information

Before using UPHO, it is essential you read this user manual carefully and pay particular attention to the safety information.

The instructions and safety information in the user manual must be followed at all times to ensure a safe operation and to maintain UPHO in a safe operating condition.

The advice given in this manual is intended to supplement, not supersede, the normal safety requirements prevailing in the user's country.

Proper Use

This product is intended to be used for research purposes only.



Other applications are not covered by Geneye warranty. The product is not suitable for use in diagnostic or therapeutic applications.

Improper use of UPHO may cause personal injuries or damage to the instrument. Geneye shall not be held responsible for any injuries or damages resulting from non-observance of the operating instructions and safety information in this manual.

If any abnormality, such as excessive noise, excessive vibration or over-heating is observed during operation, please immediately shut off the power at the main switch (rear of instrument) or at the electrical power socket and call for professional service.

- Do not attempt to move UPHO during operation.
- UPHO should only be operated by suitably qualified and trained personnel in accordance with Good Laboratory Practice.
- Do not make any modifications of the instrument.
- Disassembly will void the warranty.
- UPHO should only be used in combination with Geneye accessories, such as sample adapters and spare parts.
- Do not continue to use UPHO or UPHO accessory if damage is occurred.
- Damage or personal injury can occur if UPHO sample adapter set is not securely installed before operation (see User Manual Section 5.3).
- The use of sample adapters other than the Geneye sample adapters described in this user manual may lead to the UPHO being damaged.
- Avoid spilling water or chemicals onto or into UPHO. Damage caused by water or chemical spillage will void the warranty.
- Do not leave UPHO unattended during operation.
- The machine must be placed on a flat laboratory bench (preferably solid



wood or stone countertops) to minimise vibration during operation.

- The machine is designed for frequent use with short run times (typical run time is 1 minute). Do not use long run times (>5 minutes) when operating UPHO.
- The UPHO accessories (e.g. adapters, cans, beads) may become worn, depending on the frequency of use and the material to be homogenized. They should be regularly checked for wear and tear and replaced if necessary.

Electrical Safety

To ensure satisfactory and safe operation of your UPHO, please follow the safety instructions below at all times:

- Do not attempt to adjust or replace any internal parts of your UPHO - if there is a fault, please call for professional service.
- When UPHO is not in use, switch it off at the power switch, on the back panel of the unit (please see picture on page 7).
- If UPHO will not be out-of-use for a long period of time, switch off the power switch, on the back panel of the unit and unplug the power cord from the power outlet.
- To protect the internal circuits and parts from damage, please do not use running water to clean your UPHO: use a soft damp cloth.

Environment

- Excessive exposure to direct sunlight may bleach exposed parts of the instrument and eventually cause damage to plastic parts. UPHO should be located out of direct sunlight.

Biological Safety

- Samples may contain infectious agents. You should be aware of the



health hazard presented by such agents and should use, store, and dispose of such samples according to the required safety regulations.

- The laboratory manager must take the necessary precautions to ensure that the surrounding workplace is safe, and that UPHO operators are suitably trained and not exposed to hazardous levels of infectious agents.
- When working with volatile solvents, toxic substances, etc., you must provide an efficient laboratory ventilation system to remove steams that may be produced.

Personal Protective Equipment (PPE)

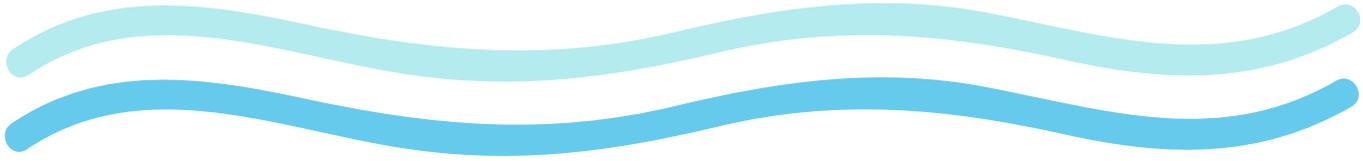
- Operators must wear the appropriate level of personal protective equipment as required for the particular laboratory environment in which the System will be used. This may include: laboratory coat, gloves, safety glasses and safety shoes.
- Operators must not operate the equipment if feeling unwell.

3. Introduction

The traditional sample grinding with a Pestle & Mortar is a very slow method, that can only process one single sample at a time and has a high risk of causing cross-contamination. Besides that, after such a procedure, it is necessary to clean and disinfect the equipment. Efficient sample disruption/grinding is a prerequisite for nucleic acid, protein and other biomolecules extraction and purification procedures.

Incomplete sample disruption can lead to significantly reduced recovery yields of the molecules of interest and can increase the risk of clogging when using purification columns or magnetic particles later in the workflow.

UPHO is a versatile bead mill device designed for rapid, efficient and simultaneous disruption of up to 64 samples. A wide range of sample adapters are available for UPHO providing sample flexibility and leading to reliable and quality results.



This bench device is one of the most advanced sample preparation systems available today. UPHO was specifically developed for routine as well as difficult and resistant samples, compatible with 3 types of grinding and lyses thoroughly and quickly a wide variety of biological samples including plant and animal tissues, cells, bacteria and yeast.

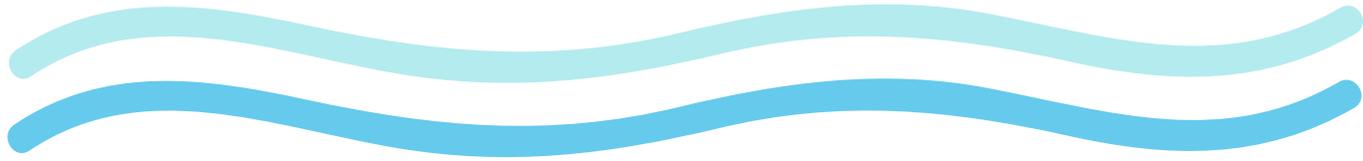
Each sample is simultaneously disrupted and homogenized by high-speed shaking with a bead/beads in a sealed tube (bead milling), allowing an easy and reproducible isolation of stable RNA, active proteins and full-length genomic DNA.

The ergonomic design of the instrument ensures an easy loading of the disposable centrifuge sample tubes that remain securely sealed during the grinding process, effectively avoiding sample cross-contamination.

The homogenization speed (frequency) and duration run-times are digitally controlled via UPHO's intuitive touch screen, improving the consistency for multi sample lots.

The different beads sizes (0,1 – 15 mm) and bead materials (wolfram steel, metal, glass and ceramic) makes the grinding process more complete and efficient with UPHO when compared to other available methods.

Moreover, thanks to UPHO's design and options for the use of cryogenic liquids to freeze samples, the sample temperature remains constant throughout the homogenization process.



4. Main Technical Parameters

- Run-time setting: 1 (sec) - 9999 (min)
- Oscillation frequency setting: 1 – 70 Hz
- Acceleration: <2 seconds to reach maximum speed
- Power rating: 195 W
- Power requirement: 220 V - 240 V~, 50 Hz, 2.5 A, 375 W
- UPHO dimensions: $\approx 460 \times 460 \times 530$ mm (length \times width \times height)
- Weight: 35 kg
- Operating temperature: 10 °C ~ 40 °C (relative humidity: $\leq 70\%$)
- Storage temperature: -20 °C ~ 50 °C (relative humidity: $\leq 93\%$)
- Maximum noise emission: 65 dB
- Interface: Touch screen

Structure Overview - Front



- Foam
- Protective cover
- Security screw
- Adaptor retainer
- Cover latch
- Display screen/ Operation panel

Structure Overview - Back



- ON/OFF button
- Power supply plug



5. Installation Procedures

Unpacking and Packing List

- Carefully remove the UPHO mainframe, accessories and documentation from the wooden shipping crate.
- Check that you have received all the item in the quantities on the list below. If anything is missing, please contact your supplier. You will also find detailed information on the contents of the package on the packing list in the shipping crate.

Quantity	Name
1	UPHO mainframe
1	User and Cell Disruption Manuals
2	Fuses
2	Sample adaptor security screws (NB. one screw may be in the mainframe)
1	Power cord
1	Quality control report
1	Warranty card

- Inspect the unit for any damage that may have occurred during shipment. If the equipment is damaged, report it to the carrier and contact your supplier. Save all packaging material in the event a return is necessary.
- UPHO comes fully assembled, requiring a minimum set-up. Please install the equipment on a clean, dry-stable surface far away from any compatible electrical outlet.
- Allow some space around UPHO for proper ventilation. This unit is "FOR INDOOR USE ONLY". Avoid operating in areas of excessive humidity or extremes of temperature.

Removal of the Transport Security System

- A transport security system is located on the underside of UPHO: comprised of 4 bolts (circled on picture below). THIS SYSTEM MUST BE REMOVED BEFORE OPERATING THE UPHO.
- Remove the 4 transport bolts from the UPHO by TILTING THE UPHO SLIGHTLY TO EXPOSE THE TRANSPORT BOLTS (as seen in the picture) and using a 13 mm x 16 mm metal wrench. DO NOT TURN THE UPHO ON ITS SIDE - THIS MAY LEAD TO INTERNAL DAMAGE.
- Please retain and carefully store the 4 transport bolts, as they will be needed to reinstall if UPHO needs to be transported in the future.
- Operating UPHO with transport security system installed, or transporting UPHO without the transport security device installed, can lead to damage to the mechanical components of the instrument.



Sample Adapter Installation

- Make sure UPHO is connected to a suitable power outlet.
- Load the filled (sample, buffer and beads) and capped sample tubes into the cavities of the sample adapter, so that they fit in the holes. It is preferred to position the tubes symmetrically in the sample adaptor to reduce vibration.
- When all sample tubes are loaded, place the sample cover on the sample adaptor.
- Open the protective cover on the sample compartment cover by releasing the cover latch, remove the security screw if present, and slide the sample adapter (and cover) on to the adaptor retainer ensuring that the sample adaptor fits over the rectangular metal locator on the adaptor retainer.



- Thread the security screw on to the adaptor retainer tighten down until the sample adaptor and cover are securely in position – Security screw should be finger tight and not over tightened. Please note that the sample adapter body may wear with prolonged use.

- Close protective cover on the sample compartment and secure with the cover latch.
- Press PLAY button (on the touch-screen) to start running the selected program.
- The program will not start if the protective cover is open or the cover latch is not secured.

For hard samples, you can use the following adaptors and cans:



6. Operating Procedures

Suggestions and recommendations with the most common grinding parameters (time, frequency, beads type and size) are listed on the “Cell Disruption Guide”, provided with UPHO.

Automatic Program



Main Menu

When you power on UPHO (in the back of the device), the main menu window will appear in the screen, together with a green light.

By touching the screen, you can execute several operations:

- Decelerate button: to decrease grinding speed 
- Accelerate button: to increase grinding speed 
- Play: to start the chosen program 
- Stop: to stop the program 
- Pause: to pause and restart a program 

User-defined Program

UPHO allows the user to define a program. Please follow these steps:

1) On the main menu, touch the "SETUP" button. This window will appear;

M - Minutes
S - Seconds

Number of grinding cycles during running time. Recommended to always set as "100"

Frequency

Group	Running Time		Grinding Cycle State		Times	Hz	Choose
	M	S	Interrupt/S	Run/S			
	0	30	0	30	100	60	<input type="checkbox"/>
	0	0	0	0	0	0	<input type="checkbox"/>
	0	0	0	0	0	0	<input type="checkbox"/>
	0	0	0	0	0	0	<input type="checkbox"/>
	0	0	0	0	0	0	<input type="checkbox"/>
	0	0	0	0	0	0	<input type="checkbox"/>
	0	0	0	0	0	0	<input type="checkbox"/>
	0	0	0	0	0	0	<input type="checkbox"/>
	0	0	0	0	0	0	<input type="checkbox"/>
	0	0	0	0	0	0	<input type="checkbox"/>

Modify Apply Close

2) On the "Choose" column, there are 10 boxes, each one of them corresponding to a certain program defined by the user. When the user touches a box, it will turn yellow.

3) After that, please touch the "Modify" button, at the bottom of the screen. The "Modify" button will turn yellow as well, after you press it.

4) This will now allow the user to set the different parameters: Running Time, Grinding Cycle State and Frequency.

5) To define a program name, touch the box on the "Group" column, in the same line as the yellow "Choose" box.

Group	Running Time		Grinding Cycle State			Hz	Choose
	M	S	Interrupt/S	Run/S	Times		
	0	30	0	30	100	60	
	0	0	0	0	0	0	
	0	0	0	0	0	0	
	0	0	0	0	0	0	
	0	0	0	0	0	0	
	0	0	0	0	0	0	
	0	0	0	0	0	0	
	0	0	0	0	0	0	
	0	0	0	0	0	0	
	0	0	0	0	0	0	

Modify Apply Close

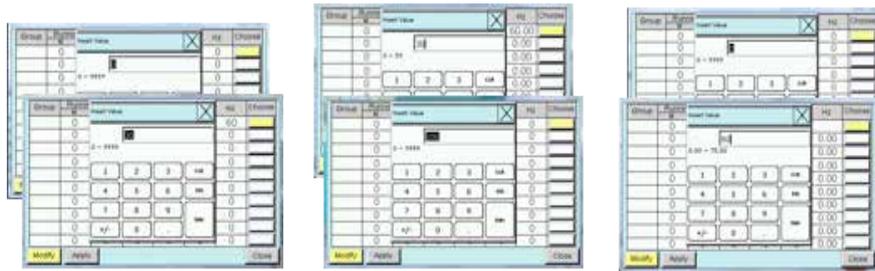
6) After that, a pop-window will appear as follows:

Group	Running Time		Grinding Cycle State			Hz	Choose
M	S	Interrupt/S	Run/S	Times			
Insert Name							
1	2	3	4	5	6	7	8
9	0	-	=	ALT			
Q	W	E	R	T	Y	U	I
O	P	[]	CLR			
A	S	D	F	G	H	J	K
L	;	'	~	DEL			
Z	X	C	V	B	N	M	,
.	/	\		ENT			
	0	0	0	0	0	0	
	0	0	0	0	0	0	

Modify Apply Close

7) Write the name of the program by touching the different keys. Click on ENT button to set.

8) By touching the other boxes, the user can define other parameters such as "Running Time - Minutes and Seconds", "Grinding Cycle State" and "Frequency".



Run/S

Time

Frequency

9) Once the user has defined the program, click the "Apply" button at the bottom of the screen to save it.

10) Then, click on "Close", the main display will appear. Click on PLAY button to start the grinding process.

11) The user can always modify later its own programs, by choosing a certain program on the Group column.

12) After a long period of time non-use time, the main menu will turn black.

7. Cleaning Maintenance

- Before cleaning your UPHO, be sure to switch the UPHO off at the main power switch (back of the instrument) and disconnect your UPHO from the power outlet.
- If solvents or saline, acidic, or alkaline solutions are spilt on UPHO wipe them away immediately.



- Do not use spray cleaning or disinfectant liquids onto surfaces of your UPHO - use a soft cloth dampened with cleaner and / or disinfectant
- Do not autoclave any part of UPHO (except beads)
- The different adapters should be cleaned after use using mild detergents or 70% ethanol, rinsed with distilled water, and then dried using paper towels.

UPHO is supplied to you with a two-year Manufacturer's warranty which runs from the delivery date.

8. Troubleshooting

Common problem	Possible cause	Action(s)
Touch screen shows incomplete or unusual characters	CPU needs to be reset	Turn off the UPHO using the Main Power Switch located on the back of the instrument Wait 30 seconds Turn the UPHO back on
No display on the screen	No power	Check main voltage Check that the voltage of the unit matches that being delivered by the main power supply Make sure the unit is plugged in properly Check and replace fuses if blown
Change switch	On/Off switch broken	Change switch
	Faulty fuse	Change fuse
	Others	Contact supplier
Instrument does not run	Motor temperature above 65°C	Wait for temperature to drop below 60°C
	Incorrect voltage selected	Power off the unit and select appropriate voltage. If problem persists, contact supplier
	Faulty Motor or Controller	
Abnormal running noise	Security Screw not locked in place	Secure Security Screw in place and lock down properly
	Faulty bearing	Contact supplier
Tube leakage	Speed is too high High temperature or pressure inside sample tubes	Reduce processing time or speed
Touch screen keys do not work	Plug connector loose	Contact supplier
	Faulty key	Contact supplier

9. Warranty Statement

The Manufacturer's warranty supplied with this UPHO does not cover wear from normal use; it does not apply if the UPHO or parts of the UPHO have been altered, repaired or replaced by anyone other than an employee of Geneye or Geneye's authorised Service Partners.

Warranty does not apply to any instrument which has been damaged through accident, negligence, failure to follow operating instructions, or from the use of electric currents or circuits other than those specified on the plate affixed to the instrument, misuse, or abuse.

Geneye reserves the right to change, alter, modify, or improve any of its instruments without any obligation whatever and to make corresponding changes to any instrument previously sold or shipped.

10. Disposal

End of Life Disposal



Reuse, recycling and recovery. The presence of this label on a product means that the product contains electrical or electronic materials and therefore must not be disposed of as unsorted waste but instead is treated separately. The presence of these materials may, if not disposed of properly, have potential adverse effects on the environment and human health.

Within the European Union, operators are urged to recycle such products when being replaced with a newer version or when they have outlived their useful lives.

11. Relevant Standards & Regulatory Requirements

EC DECLARATION OF CONFORMITY



Product Description:	UPHO device
Product Part Number:	GY-U001

The UPHO flexible bead mill device, a product of Geneye is designed for rapid and efficient disruption of up to 64 samples simultaneously (Automated Samples Grinder)

The UPHO device is in conformity with the requirements of the following European Directives (and their associated amendments):

Machinery Directive	2006/42/EC
Electromagnetic Compatibility Directive (EMC)	2014/30/EU
Electrical Safety Low voltage Directive (LVD)	2014/35/EU
Harmonized standards	EN ISO 12100:2010, EN 61010-1:2010, EN 61326-1:2013, EN 61000-3-2:2014, EN 61000-3-3:2013
Restrictions on the use of Certain Hazardous Substances (RoHS)	2011/65/EU
Registration, Evaluation, Authorization and Restriction of chemicals (REACH)	1907/2006

The tests on the above designated product complies with the requirements of Council Directive 2014/35/EU relating to Electrical Equipment designed for use within certain voltage limits.

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Signed: 

Date : January 15th, 2018

Mr. B. Coissac

Title : Managing Director

For and on behalf of: Biowire Ltd Suite D 6/F, Ho Lee Commercial Building
38-44 D'Aguilar Street, Central, Hong Kong



Regulations

UPHO also complies with other applicable European Directives and International Standards, particularly:

- The Waste Electrical and Electronic Equipment (WEEE) Directive and the Reduction of Hazardous Substances (RoHS) Directive
- EN 61010-1: 'Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements'

12. UPHO Accessories

SKU	Name of the product
GY-CS0102	2ml*1 steel can
GY-CS0402	2ml*4 steel can (with adaptor)
GY-CS0105	5ml*1 steel can
GY-CS0405	5ml*4 steel can (with adaptor)
GY-CS0110	10ml*1 steel can
GY-CS0410	10ml*4 steel can (with adaptor)
GY-CS0115	15ml*1 steel can
GY-CS0415	15ml*4 steel can (with adaptor)
GY-CS0125	25ml*1 steel can
GY-CS0225	25ml*2 steel can (with adaptor)
GY-CM0150	50ml*1 metal can
GY-CS0250	50ml*2 steel can (with adaptor)
GY-CF0102	2ml*1 freeze can (PTFE)
GY-F0402	2ml*4 freeze can (PTFE) (with adaptor)
GY-CF0105	5ml*1 freeze can (PTFE)
GY-CF0405	5ml*4 freeze can (PTFE) (with adaptor)
GY-CF0110	10ml*1 freeze can (PTFE)
GY-CF0410	10ml*4 freeze can (PTFE) (with adaptor)
GY-CF0115	15ml*1 freeze can (PTFE)
GY-CF0415	15ml*4 freeze can (PTFE) (with adaptor)
GY-CF0125	25ml*1 freeze can (PTFE)
GY-CF0225	25ml*2 freeze can (PTFE) (with adaptor)
GY-CF0150	50ml*1 freeze can (PTFE)
GY-CF0250	50ml*2 freeze can (PTFE) (with adaptor)

SKU	Name of the product
GY-BG1001	0.1mm glass beads (100ml bottle)
GY-BG1002	0.2mm glass beads (100ml bottle)
GY-BG1005	0.5mm glass beads (100ml bottle)
GY-BG1100	1mm glass beads (100ml bottle)
GY-BC1005	0.5mm ceramics beads (100ml bottle)
GY-BC6005	0.5mm ceramic beads (60ml bottle)
GY-BC1001	1mm ceramics beads (100ml bottle)
GY-BC6001	1mm ceramic beads (60ml bottle)
GY-BC1002	2mm ceramics beads (100ml bottle)
GY-BC6002	2mm ceramic beads (60ml bottle)
GY-BC1003	3mm ceramics beads (100ml bottle)
GY-BC6003	3mm ceramic beads (60ml bottle)
GY-BC10-5	5mm ceramics beads (100ml bottle)
GY-BC60-5	5mm ceramic beads (60ml bottle)
GY-BC1006	6mm ceramics beads (100ml bottle)
GY-BC6006	6mm ceramic beads (60ml bottle)
GY-BM1001	1mm metal beads (100ml bottle)
GY-BM6001	1mm metal beads (60ml bottle)
GY-BM1003	3mm metal beads (100ml bottle)
GY-BM6003	3mm metal beads (60ml bottle)
GY-BM1005	5mm metal beads (100ml bottle)
GY-BM6005	5mm metal beads (60ml bottle)
GY-BM1006	6mm metal beads (100ml bottle)
GY-BM6006	6mm metal beads (60ml bottle)
GY-BM1010	10mm metal beads (10pcs)
GY-BM1015	15mm metal beads (10pcs)
GY-BW5005	5mm wolfram steel beads (50ml bottle)
GY-BW5006	6mm wolfram steel beads (50ml bottle)

SKU	Name of the product
GY-AM2415	1.5-2ml*24 metal adaptor
GY-AP2415	1.5-2ml*24 plastic adaptor
GY-AP4815	1.5-2ml*48 plastic adaptor
GY-AP6415	1.5-2ml*64 plastic adaptor
GY-AP1205	5ml*12 plastic adaptor
GY-AP0810	10ml*8 plastic adaptor
GY-AP0815	15ml*8 plastic adaptor
GY-AP0225	25ml*2 plastic adaptor
GY-AP0250	50ml*2 plastic adaptor
GY-AF2415	1.5-2ml*24 freeze module (PTFE)
GY-AF4815	1.5-2ml*48 freeze module (PTFE)
GY-AF1205	5ml*12 freeze module (PTFE)
GY-AF0810	10ml*8 freeze module (PTFE)
GY-AF0815	15ml*8 freeze module (PTFE)
GY-AF0225	25ml*2 freeze module (PTFE)
GY-AF0250	50ml*2 freeze module (PTFE)



Thank you for
choosing UPHO !
We are sure it will
become an integral
part of your laboratory!



Visit us on the Web at www.geneye.com



E-mail us at info@geneye.com

Because of technological developments related to the products, systems, and/or services described herein, the data and procedures are subject to change without notice. Please consult your Geneye representative or visit www.geneye.com to verify that this information remains valid.

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