



## HIGH-SPEED MICROCENTRIFUGE, FLOW P12

*Please read the User Manual carefully before use, and follow all operating and safety instructions*

**User Manual**  
English

# User Manual

EN

## HIGH-SPEED MICROCENTRIFUGE, FLOW P12

### Preface

Thank you for purchasing our product. Users should read this manual carefully, follow the instructions and procedures, and be aware of all preventive measures when using this instrument.

### Service

If help is needed, you can always contact your dealer or Labbox via [www.labbox.com](http://www.labbox.com).

Please provide the customer service representative with the following information:

- Serial number
- Description of the problem
- Your contact information

### Warranty

This instrument is guaranteed to be free from defects in materials and workmanship under normal use and service for a period of 24 months from the date of invoice. The warranty is extended only to the original purchaser and shall not apply to any product or parts that have been damaged due to improper installation, improper connections, misuse, accidents, or abnormal conditions of operation.

For claims under the warranty, please contact your supplier.

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## **1. INTRODUCTION**

This manual provides important safety information for this centrifuge. It should be kept near the centrifuge for quick and easy reference. This Centrifuge is equipped with a maintenance free drive, a large display and a simple interface for silent and efficient operation in the lab. This micro centrifuge can be operated via USB with facility of data logger and comes with a host of safety features including imbalance detection. This micro centrifuge is fully programmable and can deliver up to 15000 RPM. It is designed to work with variety of microtubes ranging from 0.1ml to 2ml. This comes with 2 rotors, one for 12 x 1.5/2ml tubes and the other for 2 x8 PCR tube strips.

## **2. INTENDED USE**

This micro centrifuge is designed to separate, sediment, spin down aqueous solutions and solvent suspensions of differing densities in compatible sample containers.

**NOTE:** Before using the centrifuge, please read this user manual carefully. This user manual is intended to assist with the operation and care of the unit and is not a document which aids in repair. For repairs, please contact the supplier.

## **3. PRODUCT FEATURES**

- Imbalance detector with auto cutoff.
- Large back light digital LCD display.
- Maximum speed of 15000 RPM/15596 x g RCF.
- USB port for remote terminal control capability.
- Remote operation with data logger.
- Lid safety interlock and auto lid open
- Convenient and easy user interface.
- Quick acceleration and deceleration time.
- One touch short spin centrifugation.
- Last run memory feature.
- Emergency lid release during power cutoff.
- Countdown timer.
- Automatic internal diagnosis and error display.
- Speed setting by RPM/RCF mode.
- Fully autoclavable high strength aluminum rotor with metal lid.
- Small footprint.

#### 4. ACCESSORIES

- USB cable, Power adapter and T - Allen wrench
- 12 slots microtube rotor (pre-installed) and \*2 x 8-0.1 / 0.2ml PCR strip rotor\*
- Adaptors for 0.4/0.5 ml tubes (set of 12)
- Adaptors for 0.1/0.2 ml tubes (set of 12)

#### 5. TECHNICAL SPECIFICATIONS

Motor type	Brushless DC Motor
Rotor Capacity	12 x 2 ml (microtubes)
Speed Setting	Variable 500 – 15000 RPM
	15596 x g (Max RCF)
Speed Accuracy	± 100 RPM
Run Time	30 secs to 999 mins and infinite mode
Acceleration Time	30 seconds
Deceleration Time	40 seconds
Noise Level	<60 dB
Ambient Temperature	5 – 40 °C
Permissible Relative Humidity	≤80%
Size (W x D x H)	262 x 230 x 131 mm
Weight	4.5 Kg (with rotor)
Power Adapter Detail	Input: 100-240VAC, 50/60Hz Output: 24V 6A ...
Power Consumption	72W
Altitude	Use up to an altitude of 2000 m above MSL
Pollution Degree	2
Environment	For indoor use only

#### 6. SAFETY PRECAUTIONS



Read all safety and usage information provided in this manual carefully before using the device.

- Never use the centrifuge 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 centrifuge while the rotor is spinning.
- The rotor and the rotor lid must always be securely fastened. If the centrifuge makes unusual noise during operation, the rotor or rotor lid fit needs to be checked. Switch OFF the device immediately by pressing STOP, check rotor fit and fasten it well.
- The rotors must be loaded symmetrically. Each tube should be counterbalanced by another tube of the same weight.
- Do not use the centrifuge or rotor that has not been correctly installed or damaged.
- Repairs must only be performed by authorized service technician.
- Using incorrect rotors and wrong spare parts will void the warranty.
- Centrifuges 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 centrifuge explosive or highly reactive substances.
- If liquids are spilled on the rotor or rotor chamber, the centrifuge must be cleaned carefully and properly before being used again.
- Prior to centrifugation, the tubes should be visually inspected for material damage. Damaged tubes may not be centrifuged. This is because broken tubes can, in addition to sample loss, create imbalance which can result in further damage to the centrifuge and accessories.
- The capacity of 12 x 1.5 / 2 ml must not be exceeded as it is the maximum capacity. Do not use liquid with density higher than 1.2g/ml for full load operation.
- Do not lean on the equipment. It may damage the equipment or harm the operator.
- When moving the centrifuge from a cold room to a normal room, run the centrifuge for 30 minutes beforehand in the cold room to avoid condensation. Alternatively, allow it to warm up in the lab for at least 3 hours before use, but do not plug in the centrifuge in order to prevent possible damage by condensation.
- Be sure to close the tubes lid tightly prior to centrifugation. Open tubes lid can be torn off during centrifugation and can damage the rotor lid or centrifuge.
- Rotors and rotor lids 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 rotor for any signs of damage before use. Rotor and rotor lid showing visible signs of corrosion or mechanical damage should not be used, contact your local supplier for replacement rotor and parts.
- Do not fill tubes while they are in the rotor. Liquid spillage may harm the device.

- In the event of contamination caused by aggressive agents, the rotor 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 stipulated by the manufacturer, contact the manufacturer to ensure that the intended method will not damage the centrifuge.
- The power adaptor given with centrifuge unit is designed to use for that particular centrifuge. Do not use any other power adaptor, using any other power adaptor may damage the centrifuge and will void the warranty.

## 7. INSTALLATION

Open the box, then remove the packaging and gently take the centrifuge out of the box. Before using this centrifuge open the centrifuge and remove all packaging from the rotor chamber and ensure rotor is firmly tightened. The user manual and accessories should be kept near the centrifuge. Please keep all packaging in safe storage for warranty purposes.

- **MOUNTING**

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

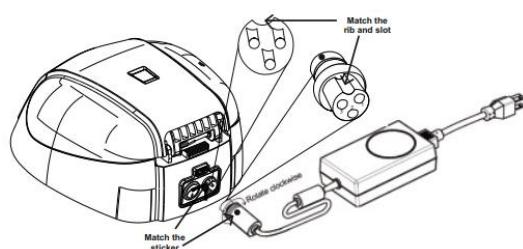
1. Ideal ambient temperature is  $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ; avoid placing the centrifuge in direct sunlight.
2. Keep clearance of at least 10 cm on both sides and at least 30 cm behind it to guarantee cooling efficiency.
3. Keep away from heat or water to avoid sample temperature issues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

- **CONNECTING POWER ADAPTOR**

1. Connect one side of power adaptor to rear side of centrifuge and the other to supply as shown in the figure below.

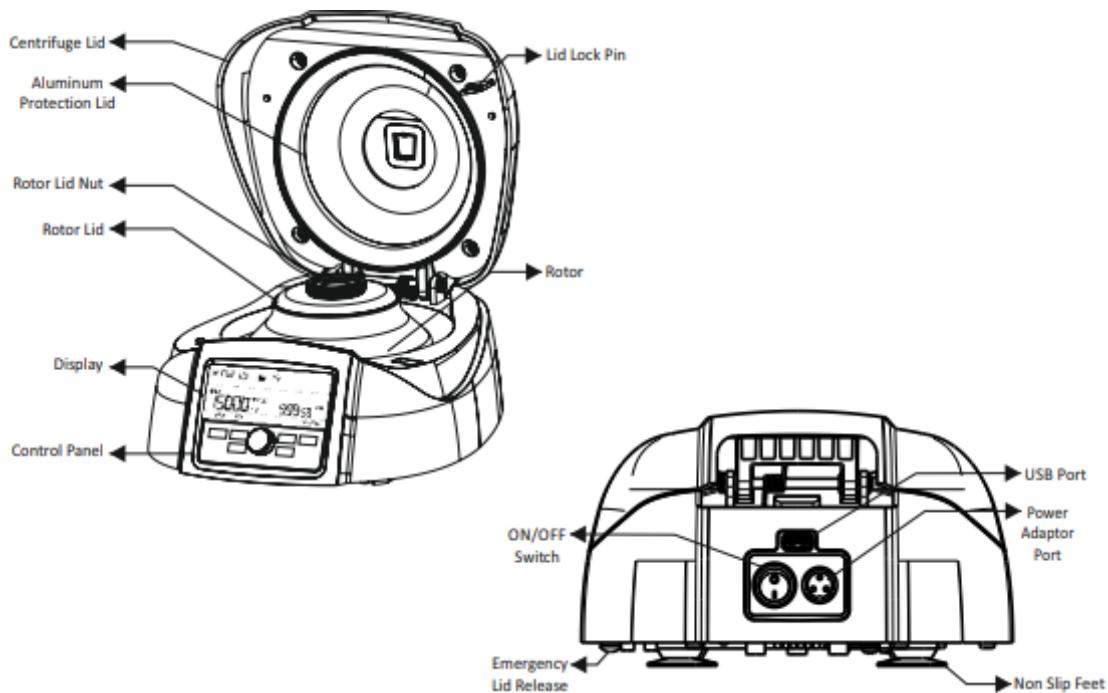
2. Rotate clockwise the adapter nut to tighten the adapter with the centrifuge. Ensure the power switch is OFF while connecting the power adapter.

3. The sticker on the body and jack indicate the position of the rib on the jack. While fitting the adaptor to the unit-please match the sticker position as shown in the figure below and gently push it in.

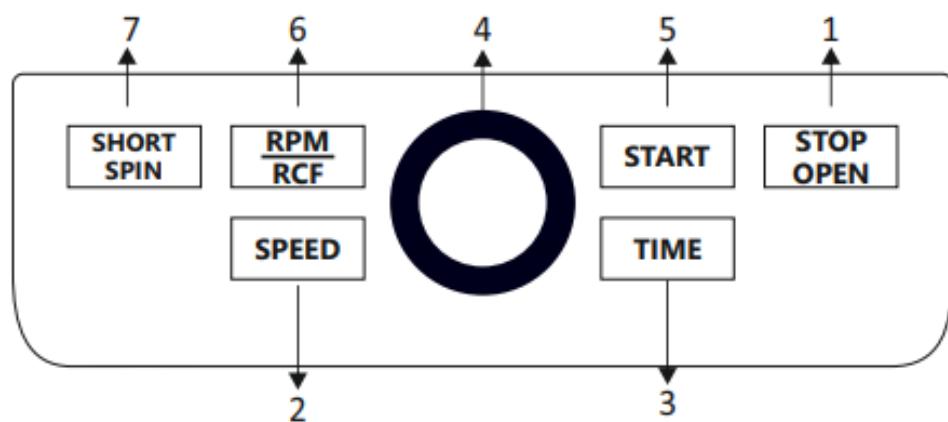


4. If matched correctly the plug will go in easily without much force (do not try to 2 1 3 Match the rib and slot Match the sticker 4 force the plug in if it is not matched properly). Once the plug is inserted into position, turn the loosened upper ring clockwise until it is tight to secure the fitment.

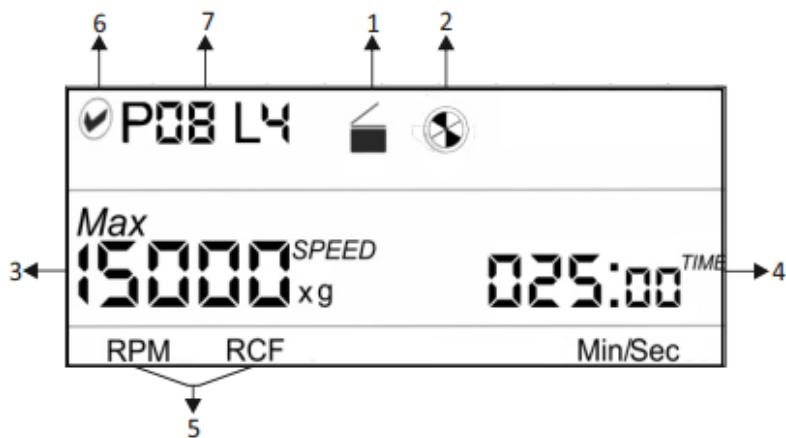
## 8. STANDARD PARTS LISTING



## 9. USER INTERFACE and DISPLAY



Item	Name	Function
1	STOP/OPEN BUTTON	Press button to STOP the ongoing operation. Lid opens automatically, after rotor comes to a stop.
2	SPEED BUTTON	Press button to select SPEED mode. Then rotate Item 4 to set desired run SPEED.
3	TIME BUTTON	Press button to select TIME mode. Then rotate Item 4 to set desired run TIME.
4	SETTING KNOB	Use to set speed and time. Rotate the knob clockwise to increase and counterclockwise to decrease values.
5	START BUTTON	Press button to START running the centrifuge.
6	RPM/RCF BUTTON	Use to set/read RPM/RCF values.
7	SHORT SPIN BUTTON	Press and hold short spin button after setting the required speed to run the centrifuge for a short time.



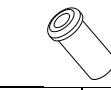
Item	Symbol	Description
1		Indicates lid status. Left image = lid close and Right image = lid open
2		Indicates centrifuge status. When centrifuge is running the symbol rotates and when centrifuge is not running the symbol is static.
3		Indicates the speed value at which centrifuge is running. x g indicates the value in RCF mode.
4		The timer is a countdown timer. It indicates the time for which the centrifuge will run. The time is displayed in Min/Sec mode.

5	<b>RPM / RCF</b>	Indicates RPM or RCF mode and shows corresponding values.
6		Centrifuge is connected via software. When this mode is active, control panel buttons (except stop button) will be deactivated.
7	<b>P08 L4</b>	Indicates the specific program details being used. (Applicable in remote operation mode)

## 10. ROTOR INSTALLATION

- **ROTORS AND ACCESSORIES**

The table below shows rotors compatible with the centrifuge and the Max. RCF with different tubes and adapters (optional PCR strip rotor CCAN-A10-001).

12 tubes rotor 	1.5/2.0ml tubes 	0.5ml adaptor 	0.1/0.2ml Adaptor 		PCR strip rotor  (optional)	0.2ml PCR strip 
			0.1ml	0.2ml		
<b>Max. Speed</b>	15000	15000	15000	15000	<b>Max. Speed</b>	15000
<b>Max. RCF</b>	15596.1	13017.7	10278.3	11105.9	<b>Max. RCF</b>	13080

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

- **ROTOR REMOVAL AND REPLACEMENT PROCESS**

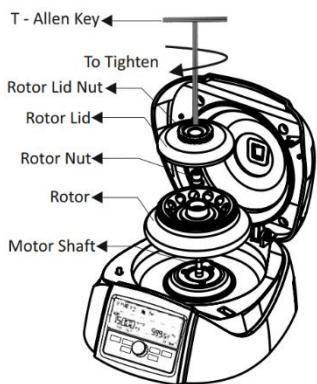
The rotor comes pre-installed with the centrifuge. If you want to remove or replace the rotor, follow the instructions below.

- **REMOVING THE ROTOR**

1. Do not remove or loosen the rotor lid before attempting to remove the rotor.
2. Using the T - Allen Key, loosen the rotor nut by turning it counterclockwise. Do not try to pull the rotor, the rotor will come up automatically.
3. Once the rotor nut is loosened completely, pull up the rotor vertically.

- **REPLACING THE ROTOR**

1. To replace or install the rotor, take the rotor and load vertically onto the motor sha.
2. Place the rotor nut in the center hole of the rotor onto the motor sha.

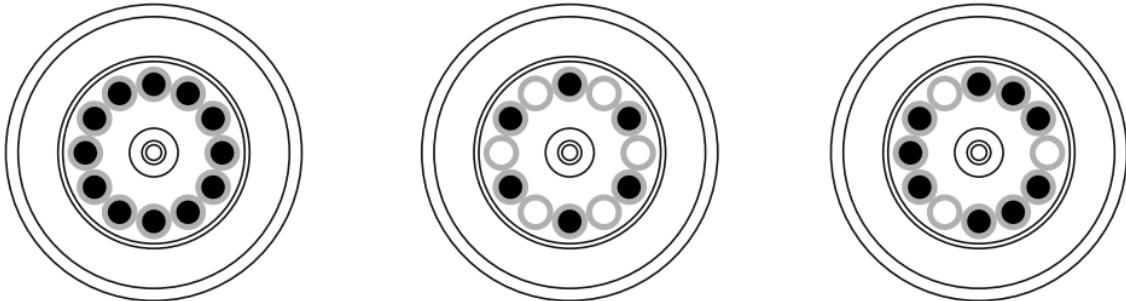


3. Put T -Allen Key into the rotor nut and turn clockwise to tighten and counterclockwise to loosen the rotor.
4. After properly fastening the rotor, place the rotor lid on the rotor lid nut by hand and rotate the rotor lid nut clockwise.

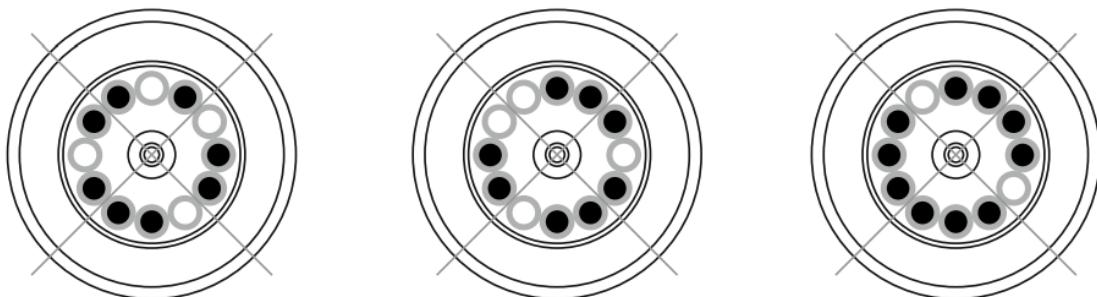
**Note:** 1) Check the rotor is firmly tightened before running the next program.

2) Do not remove or loosen the rotor lid before removing the rotor.

- **BALANCING THE ROTOR**

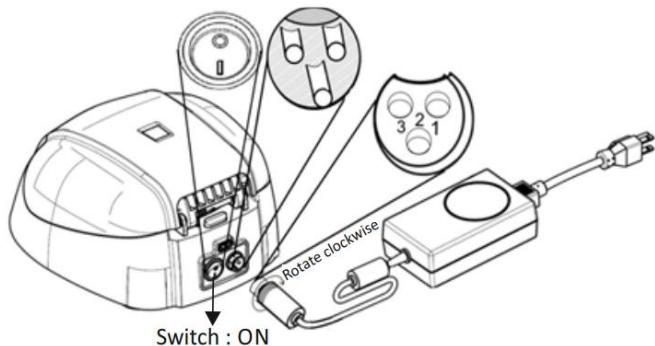


1. Always balance the rotor before centrifugation. Above are examples of properly balanced rotors.
2. The samples in the tubes should be of equal volume.
3. If the tubes are not loaded correctly, vibration or imbalance can occur, which can cause serious damage to the centrifuge.
4. If the tubes are not loaded symmetrically then the imbalance detector will cut off the running centrifuge for device and user safety. This will stop the centrifuge and Err 55 will be seen indicating tubes are not loaded symmetrically. To resume operation, load tubes symmetrically and restart the centrifuge.
5. Incorrect method of loading tubes in centrifuge rotor:



## 11. OPERATING THE CENTRIFUGE

- **STARTING THE CENTRIFUGE**



After connecting the power adapter, switch ON the power at the rear side of the centrifuge. Make sure to check the rotor fit before use. Centrifuge will not operate with an open lid.

**NOTE:** Maintain a gap of 3 seconds between turning off and turning on the centrifuge. DO NOT turn off and turn on the centrifuge instantly.

- **SETTING THE SPEED AND TIME**

After closing the centrifuge lid, press the “SPEED BUTTON” to select the speed setting. Now rotate the “SETTING KNOB” clockwise to increase the speed value and rotate counterclockwise to decrease the speed value. The minimum and maximum speed of the centrifuge is 500 RPM and 15000 RPM respectively.

1. Pressing the speed button “ONCE” will make the speed change in interval of 1000s. For example: if the speed is 10000 RPM, then next speed will be 11000 RPM.
2. Pressing the speed button “TWICE” will make the speed change in interval of 100s. For example: if the speed is 10000 RPM, then next speed will be 10100 RPM.
3. Pressing the speed button more than 2 times will start the process again from point 1.
4. The input will be accepted if the setting knob is idle for 3 seconds. The value will blink five times to indicate acceptance.

The speed can be changed while the centrifuge is running. Press the speed button and follow above steps. Once the speed is changed during centrifugation it will remain for the rest of centrifugation cycle. Speed and time can be changed multiple times during the centrifugation cycle.

Press the “TIME BUTTON” to select the me setting. Now rotate the “SETTING KNOB” clockwise to increase the me and rotate counterclockwise to decrease the me. The centrifuge timer is set to run between 30 seconds to 999 minutes or operate in infinite mode. Infinite timer will be indicated by ][:][ in display. The minimum time setting is 30 seconds. The timer in the centrifuge is a countdown timer and the me in the display will be in “Min/Sec” mode. The same will be

shown on the display.

1. Pressing the me button “ONCE” will make the me change in interval of minutes. For example: if the me is 005:00 (5 Mins 0 Sec), then the next me will be 006:00 (6 Mins 0 Sec).
2. Pressing the me button “TWICE” will make the me change in interval of seconds. For example: if me is 005:00 (5 Mins 0 Sec), then next me will be 005:01 (5 Mins 1 Sec).
3. Pressing the me button more than 2 times will start the process from point 1.
4. The input will be accepted if the setting knob is le idle for 3 seconds. The value will blink five times to indicate acceptance.

Press the “START BUTTON” to start operation and press “STOP/OPEN BUTTON” to stop the ongoing operation. When the centrifuge is running the symbol “” will be rotating. Pressing the “STOP/OPEN BUTTON” will stop the operation. The centrifuge lid will automatically open once the rotor comes to a stop. If the program running me ends, the centrifuge will stop and the lid will automatically open. When the centrifuge is not running the symbol “” will be stable. To open the lid without running the centrifuge, press the stop/open button.

- **SWITCHING TO RCP DISPLAY**

Press “RPM/RCF BUTTON” to change the mode from RPM to RCF (Relative centrifugal force).

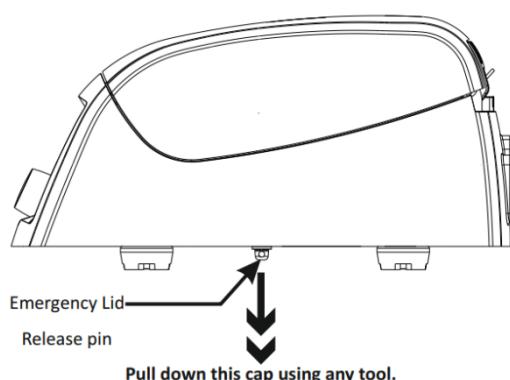
After pressing the button, the display will show the speed in RCF. Maximum RCF speed of the centrifuge is 15596 x g. The system will automatically convert the values from RPM to RCF and vice versa.

- **SHORT SPIN CENTRIFUGATION**

Press “SHORT SPIN BUTTON”: Short Spin Centrifugation is the feature for short/pulse run. It will run as long as the button is pressed. Set rotational speed prior to short spin as required. During the short spin the timer will be incremental mode. After releasing short spin button, the me in the display will show duration of short spin.

- **OPENING THE CENTRIFUGE LID IN POWER FAILURE**

Disconnect the centrifuge from the power supply. Wait until the rotor has come to a standstill



(this may take me). Once the rotor has stopped, pull down the emergency lid release cap present below the centrifuge. This will open the centrifuge lid.

- **IMBALANCE DETECTION**

The centrifuge comes with an imbalance detection safety feature. When the rotor is not loaded symmetrically, the imbalance detector gets activated and stops any centrifugation. Error message "Err 55" will be shown on the display. Correct the imbalance load using the method described in the "Balancing The Rotor" section (page 13) of this manual. After correcting the imbalance, turn off the centrifuge and turn it back on. The values will be the same as set before the imbalance occurred. The imbalance detection feature cannot be deactivated, as it is a factory fitted safety feature.

## **12. REMOTE OPERATION and PROGRAMMING**

For programming and remote operation, the centrifuge needs to be connected to a computer.

- **SYSTEM REQUIREMENT**

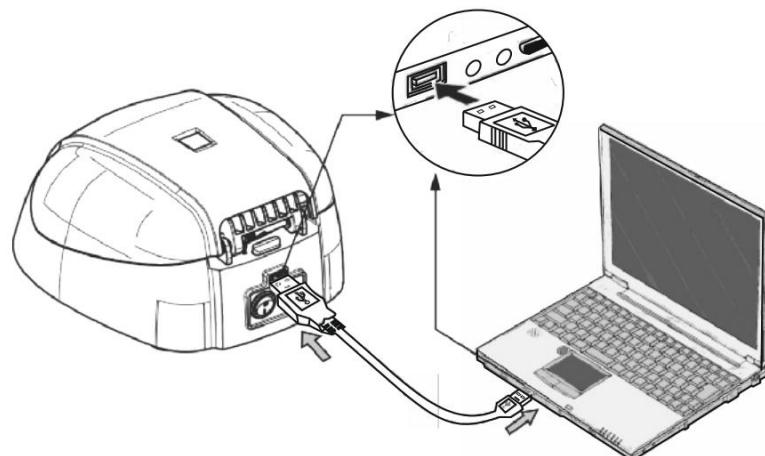
The Graphical user interface (GUI hereafter) software and data logger file require at least the following system to operate: Operation System: Windows® 7 with i3 Processor or higher with 32-bit or 64-bit operating system and Windows® XP Sp3. Microsoft .NET framework 4 and Microsoft Office Excel 2007 or 2010 are required for operating GUI.

- **INSTALLING GUI SOFTWARE**

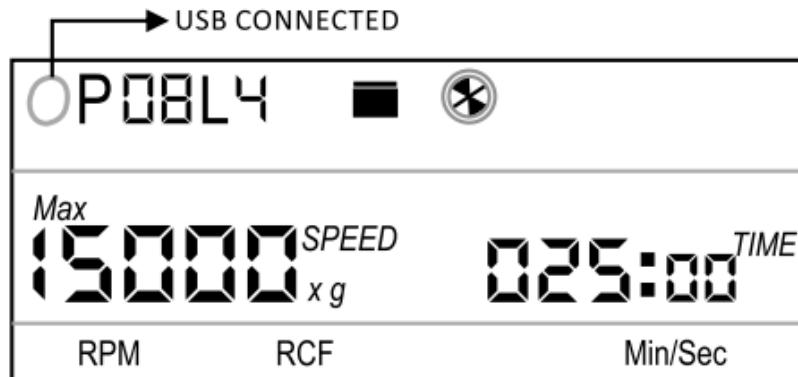
GUI Software CD is provided with the centrifuge kit. Install the software from the CD by running the setup file. After installation the GUI software icon and centrifuge data logger file will appear on the desktop.

- **CONNECTING USB CABLE**

Connect one side of the USB cable to back side of the centrifuge and another side to the USB computer port. Without the USB connection the centrifuge will not operate through the software. USB connection is shown below.

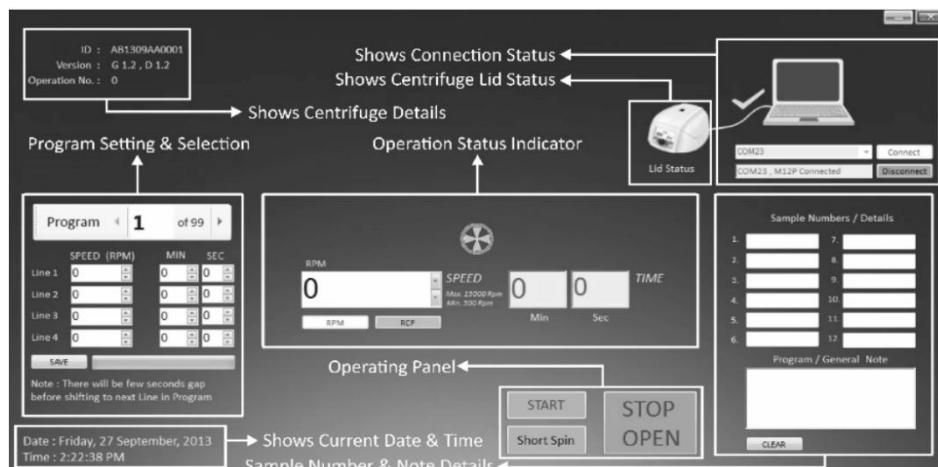


After the USB has been connected a symbol at the top left on the centrifuge display will appear to conform and indicate that the centrifuge is recognizing this connection.

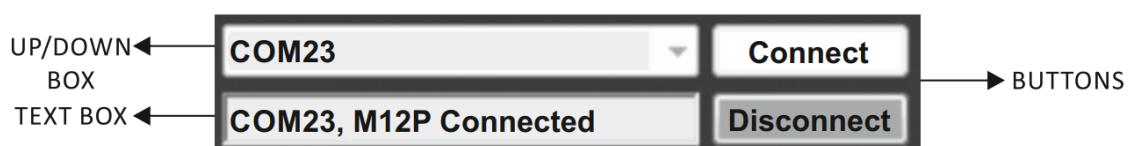


Once the USB cord is connected, the centrifuge unit controls will be disabled. The centrifuge can now be run using the program. Only the “STOP/OPEN BUTTON” will be functional on the control panel.

- **UNDERSTANDING THE GUI AND OPERATION**



#### COM PORT CONNECTING AND DISCONNECTING



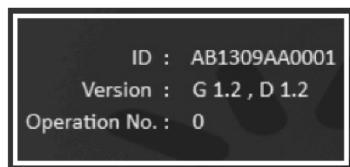
Once you connect the USB cable, the COM PORT for the centrifuge is detected automatically. Click on the CONNECT button to connect centrifuge and computer for remote operation. After connection, the TEXT BOX will show “COM, M12P Connected”.

**NOTE:** If any other device is connected after connecting the centrifuge, then the COM PORT of software gets updated. Select the centrifuge COM PORT from the COM PORT drop down box and click connect to reconnect the centrifuge.

**NOTE:** Once the software is connected, the buttons on the centrifuge are deactivated and only

stop button will operate.

### THE CENTRIFUGE DETAILS

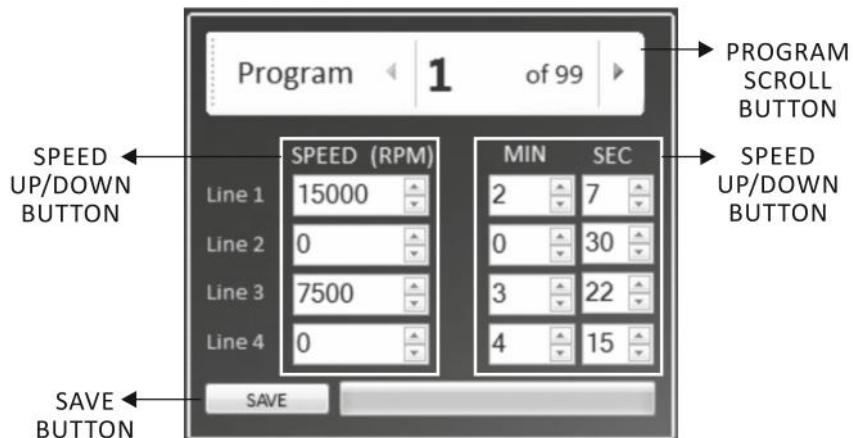


After the centrifuge has been connected, the centrifuge ID and version will display in the GUI screen. The operation number shows the number of operations performed using the software.

### SETTING A PROGRAM

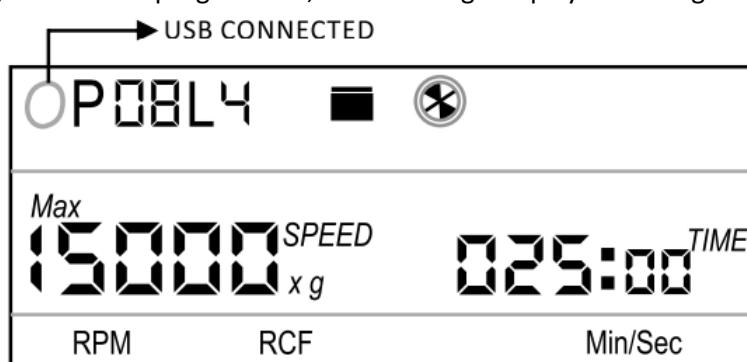
Remote operation provides 99 programs and with 4 lines maximum per program. It can be used to pre-set and save programs for specific and regular operations. Below is an example of a program:

1. Run centrifuge for 2 minutes and 7 seconds with speed 15000 RPM
2. Then take a pause of 30 seconds
3. Then run centrifuge for 3 minutes and 22 seconds with speed of 7500 RPM
4. Then pause for 4 minutes and 15 seconds



**Note:** There is delay of 8 seconds between all 4 lines.

After completing at least one program line, the centrifuge display will change as shown below.



Click on the "PROGRAM SCROLL BUTTON" to select the required program out of the total 99 programs you wish to set. Start with the 1st line click on the "SPEED UP/DOWN BUTTON" to

select value of the specific line, of the program. Speed can be set only in RPM mode. Click on “TIME UP/DOWN BUTTON” to select me value of specific line of the program. Up to 4 lines of a program can be saved. Operation will always start from the 1st line. After changing speed and me for centrifugation according to user requirement click on the “SAVE” button to save/set the program. Follow the same procedure for other lines of the program as needed.

#### PROGRAM NOTE AND SAMPLES NUMBERS

Users can write the details of each sample used for centrifugation for reference

Sample Numbers / Details	
1. 1202	7. 1202
2. 2105	8. 2105
3. 6598	9. 6598
4. 1235	10. 1235
5.	11.
6.	12.
Program / General Note	
5, 6, 11, 12 has sample Number = 3205	
CLEAR	

purposes. Users can also write General Notes regarding the sample used, operation

details or any other specific information which is worth mentioning in “Program / General Note” text box as shown in the diagram below. The data entered here will be saved in the data log report.

Click on the “CLEAR” button to clear the sample number and general note details of the program.

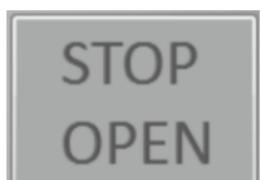
#### PRE-SET PROGRAM SELECTION AND OPERATION



Click on the “PROGRAM” scroll button to select the required pre-set program out of total 99 programs.



After selecting the required program, click on the “START” button to start the operation. Operation will start from 1st line of the selected program. There is a delay pause of 8 seconds between all 4 lines. Once the 1st line operation is over it will wait for 8 seconds to start the 2nd line operation. During the operation all the buttons on the device and boxes of the GUI will be disabled except the “STOP/OPEN” button. When the centrifuge is running the symbol in the GUI  will rotate.



Click on “STOP/OPEN” button to stop the ongoing operation. The centrifuge lid opens automatically when the rotor comes to a standstill. Users can also stop the ongoing operation by pressing “STOP/OPEN”

button on the device. The lid status will be indicated on the GUI screen.

### ACTIVE LINE SPEED DISPLAY



This “SPEED UP/DOWN” box is used to read the speed value of active lines of the program. For example: if line 3 of the 46th program is running then the “SPEED UP/DOWN” box will display the speed value of line 3 of the 46th program. It can be used to change the speed value of the active line.

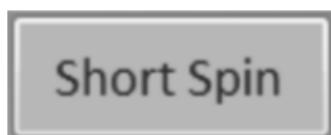
Click on “RPM” or “RCF” button to read speed value in RPM or RCF mode for active line.

### ACTIVE LINE TIME DISPLAY

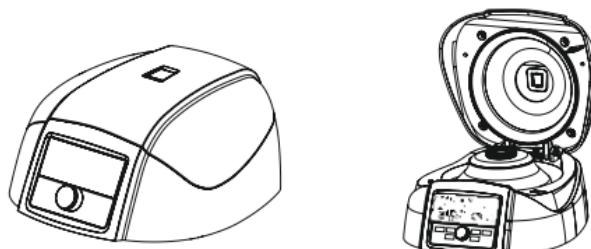


“TIME TEXT” box is used to read the remaining me value of active lines of the program. For example: if line 3 of the 46th program is running then the “TIME TEXT” box will display the remaining me value of line 3 of the 46th program. This is a countdown timer.

### SHORT SPIN CENTRIFUGATION



After setting required speed in the “SPEED UP/DOWN” box click the “SHORT SPIN” button for short spin operation. The timer display in this mode is created in seconds. During short spin operation the “TIME TEXT” box will disable as the timer converts to a count timer. Press the “STOP/OPEN” button to stop the short spin operation.



The above images will be displayed on the screen according to the status of the lid.

### CENTRIFUGE STATUS

This symbol shows the centrifuge status. When the centrifuge is running the symbol rotates and when centrifuge is not running the symbol is static.



**NOTE:** Centrifuge will get connected to a computer only if the USB cord is connected to both centrifuge and computer. Proper selection of centrifuge COM PORT is necessary to enable the remote operation.

**NOTE:** It is highly recommended not to use or work on any other application or do online work while GUI is operating.

- **DATA LOG**

The remote operation comes with data log features. All operations performed through the GUI will be saved as an excel sheet. With the help of the data log, users can view and make a printout of the previously performed operations. Users can access the data log file from their desktop. Data logger file named “Centrifuge Data Logger” will generate automatically on the desktop of the user’s computer once the operation is performed. The following type of operation details will be saved in an excel sheet.

	A	B	C	D	E	F	G	H
7	Date : Friday, 19 July, 2013							
8	Time : 4:45:25 PM							
9	Centrifuge ID : AA1307B30001							
10	Version No. : G 1.2 , D 1.2							
11	Operation No. : 1							
12	S1:							
13	S2:							
14	S3:							
15	S4:							
16	S5:							
17	S6:							
18	S7:							
19	S8:							
20	S9:							
21	S10:							
22	S11:							
23	S12:							
24	Note :							
25	NORMAL Operation							
26	P : 1							
27	L : 1							
28	SET SPEED : 15000 RPM							
29	SET TIME : 2 Min And 51 Sec							
30	-----							
31	STOP TIME : 2 Min And 27 Sec							
32	Run TIME : 0 Hour And 0 Min And 24 Sec							
33	ERROR STATUS :							

**NOTE:** The GUI software will not operate if “Centrifuge Data Logger” file is open. Ensure you close the log sheet before remote operation.

### **13. MAINTENANCE AND CLEANING**

1. The rotor and the outside of the centrifuge 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 centrifuge 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 centrifuge housing, rotor chamber, rotor and rotor accessories clean. All parts should be wiped down periodically with a so cloth. For more thorough cleaning, use a neutral

cleaning agent (Ph between 6 and 8) applied with a so 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 rotor.
8. If the rotor chamber needs cleaning, clean it with a cloth or a sponge moistened with a neutral detergent solution (like water).
9. Do not place the rotor into the cleaning solution!
10. If corrosive, toxic or pathogenic bacteria are accidentally spilled in the rotor or rotor chamber, the centrifuge 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 centrifuge 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.

ERROR	PROBLEM	SOLUTION
No display	No main power connection.	Power check and proper plug-in of main cable at both ends.
	Power failure	Check the mains fuse of the lab.
	Improper connection.	Connect adaptor properly.
	Lid not closed correctly.	Close lid correctly.
	Error with lid closing and opening mechanism.	Contact service.
Err 55	Rotor not loaded symmetrically.	Load rotor symmetrically and restart centrifuge.
Centrifuge lid cannot be opened	Rotor is still spinning.	Wait for the rotor to come to a stop.
	Power failure	Press emergency lid release after rotor stops
Centrifuge shakes during acceleration and makes while running noise	Rotor is not loaded symmetrically	Load rotor symmetrically and restart operation
	Either a broken tube, damage to the rotor or	Replace broken tubes. For damaged rotor/motor contact a service

	motor is the cause of running noise.	representative.
	Rotor is damaged.	Remove and change rotor
Display error	Loose connection of display.	Contact service representative
Err 1	Lid is not properly latched	Open lid and close it properly.
Err 52	Rotor is stuck	Turn OFF the centrifuge, Check the rotor for proper fit and turn ON centrifuge again.
Power tripping	Cable does not fit properly.	Remove cable and connect properly.
Last run memory not displayed	The centrifuge was turned ON immediately after being turned OFF.	Maintain a 3 second gap Between turning the centrifuge OFF and ON.
System gets hung up	Electronics error.	Switch off centrifuge and then switch it ON again. If the error still shows, contact service representative.

#### **IMPORTANT NOTE:**

1. Maintain a 3 second gap between restarting the centrifuge. Instant ON-OFF can lead to a reset, erasing last run memory.
2. If the motor gets hot due to which there will be a fluctuation in speed value, then allow the centrifuge to cool for at least 30 minutes. Do not do any operation for 30 minutes.
3. Do not use liquids with density higher than 1.2g/ml for full load operation.

#### **15. WARRANTY STATEMENT**

This product is guaranteed to be free from defects in material and workmanship. 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 damage, commercial loss or any other damage 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 damage caused by their 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 a well-packed and insured manner and all shipping charges must be paid.

**Note:** Some states do not allow limitations 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 for merchantability or 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 of the date of purchase.

For details regarding the warranty period, please refer to the warranty card provided with the product.

## 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 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.

### **Nota importante para los aparatos electrónicos vendidos en España**

Instrucciones sobre la protección del medio ambiente y la eliminación de aparatos electrónicos:



Los aparatos eléctricos y electrónicos marcados con este símbolo no pueden ser eliminados en forma de residuos urbanos.

De conformidad con la Directiva 2012/19/UE, los usuarios de la Unión Europea de aparatos eléctricos y electrónicos, tienen la posibilidad de devolver sus RAEE para su eliminación al distribuidor o fabricante del equipo después de la compra de uno nuevo. La eliminación ilegal de aparatos eléctricos y electrónicos es castigada con multa administrativa.

### **Remarque importante pour les appareils électroniques vendus en France**

Informations sur la protection du milieu environnemental et élimination des déchets électroniques :



Les appareils électriques et électroniques portant ce symbole ne peuvent pas être jetés dans les décharges.

En réponse à la réglementation, Labbox remplit ses obligations relatives à la fin de vie des équipements électriques de laboratoire qu'il met sur le marché en finançant la filière de recyclage de ecosystem dédiée aux DEEE Pro qui les reprend gratuitement (plus d'informations sur [www.ecosystem.eco](http://www.ecosystem.eco)).

L'élimination illégale d'appareils électriques et électroniques est punie d'amende administrative.

### **Nota importante per le apparecchiature elettroniche vendute in Italia**

Istruzioni sulla protezione ambientale e sullo smaltimento dei dispositivi elettronici:



Le apparecchiature elettriche ed elettroniche contrassegnate con questo simbolo non possono essere smaltite come rifiuti urbani.

In conformità con la Direttiva 2012/19 / UE, gli utenti dell'Unione Europea di apparecchiature elettriche ed elettroniche hanno la possibilità di restituire i propri RAEE per lo smaltimento al distributore o al produttore di apparecchiature dopo averne acquistato uno nuovo. La rimozione illegale di apparecchiature elettriche ed elettroniche è punibile con una sanzione amministrativa.



www.labbox.com