Mixing Speeds (RPM) for Di□erent Micro-plates Depending on Filling Volume/ Well (%)			
Filling Volume in %	96 Standard Well	96 Deep Well	384 Standard Well
50 %	1000 - 1200 RPM	800 - 1200 RPM	1200 RPM
75 %	800 - 1000 RPM	600 - 1000 RPM	900 - 1100 RPM

10. CLEANING AND MAINTENANCE

- Cleaning should be done using a Damp cloth.
- Unplug the unit from its power source before any cleanup process.
- In case of any spillage allow the device to be steady.
- Remove a contaminant by cleaning the unit frequently
- Store in a dry place after packing

Note: Do not attempt to service or repair a product under warranty before consulting your manufacturer or distributor. After warranty period even such consultation are advised

11. SAFETY PRECAUTION

- Do not lift the shaker by holding the micro-plate or shaking platform.
- Always operate the unit on a leveled and stable surface to avoid any kind of accident.
- The shaker should be used for specific applications only.
- Do not use shaker in the hazardous environment or with hazardous material for which the unit is not designed.
- Do not operate the unit if it shows signs of electrical or mechanical damage. If any such damage is found, contact the supplier.
- Care should be taken on the basis of sample used for mixing.

12. 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 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.

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.

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

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

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

13. PRODUCT DISPOSAL

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

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.

AHN Biotechnologie GmbH
Uthleber Weg 14
D-99734 Nordhausen
Germany

Phone: +49(0)3631/65242-0
Fax: +49(0)3631/65242-90

E-Mail: info@cappahn.com
www.capp.dk

0252-01-0000-02-003-R0



CRP-412X

PRODUCT USER MANUAL

1. INTRODUCTION

This four plate shaker is a microprocessor controlled shaker & comes with a digital display and a "PULSE" mode. It shakes with an orbital diameter of 3 mm for proper mixing of samples.

2. INTENDED USE

This four plate shaker is used for mixing various biological liquids and chemicals in micro-plates. It can be used in areas of biochemistry, biotechnology and microbiology laboratories.

3. FEATURES

- Uniformly shakes micro-plates
- Microprocessor controlled device and digital display
- Adjustable speed from 200 to 1200 RPM at every 10 RPM
- Adjustable time from 1 to 999 minutes and infinite mode
- 3 mm orbital motion for thorough mixing in micro-plates
- Easy loading and unloading of micro-plates
- Brushless DC motor for quite operation and maintenance free life
- Spill safe operation even at higher speeds
- Pulse mode feature for clockwise and counter clockwise motion

4. ACCESSORIES

- Replaceable O-ring
- Product manual & warranty card
- Power Adapter: Input Voltage - 100-240VAC 50/60Hz
  Output Voltage: 24V ⎓ 1.5A

5. TECHNICAL SPECIFICATIONS

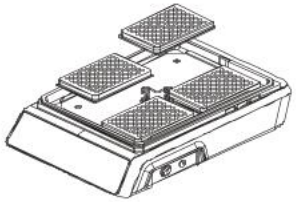
Motor Type	Brushless DC Motor
Type of Movement	Orbital
Orbital Diameter	3mm
Plate Capacity	4 Micro plate
Maximum Volume	384 x 60 µl
Speed	200 to 1200 RPM at every 10 RPM
Time	1 to 999 minutes & infinite mode
Pulse Mode	Yes(clockwise & counter clockwise)
Display (Speed & Timer)	7 Segment LED
Plateform size (L x W)	274 x 188 mm
Dimensions (W x D x H)	267x393x105 mm
Protection Class	IP 21
Permissible Ambient Temp.	4 to 65°C
Permissible Relative Moisture	80%
Weight	4.91 kgs
Noise Level	<60 db
Input Voltage	24V ⎓ 1.5A
Power Consumption	36 W

6. INSTALLATION

Gently take the unit out of the box and place it on a flat, stable and non slippery surface. Keep 2-inches clearance from all 4 sides of the shaker so that it can be operated easily and safely. Do not lift the instrument by holding the platform. Check whether the rubber suction cup is attached to the table properly. Plug in the power adapter pin before connecting to the power source. The instruction manual and accessories should be kept near the device in a safe storage location for at least 2 years for warranty purposes.

7. INSTALLING MICRO-PLATES

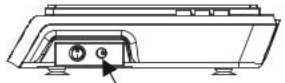
The plates can be fixed on any side of the central pre-set O-ring. Gently push the O-ring towards the centre of the plate sets locked on the wall of the platform. Ensure that the plate sits flat on the platform.



8. OPERATION

POWERING THE SHAKER

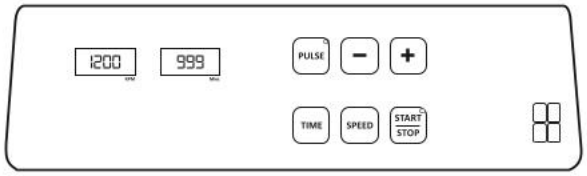
To start operation, connect the power adapter to the port at the left of the unit and subsequently flip the switch present at the left side of the unit to "I".



SPEED EDIT FUNCTION

Press the 'SPEED' button to set the RPM, followed by "+" OR "–" buttons to increase OR decrease the speed value from 200-1200 RPM.

On single press of the "+" and "–" buttons, the speed increases and decreases by 10 RPM respectively.



In order to fast forward the increment OR decrement of the speed setting, press + or – button continuously. (for eg: the increment will jump from 20, 40, 60... , as long as we continue to press the "+" or "–" button.)

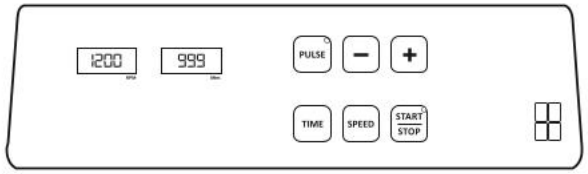
The value in the display window will blink 5 times and then stop, confirming that the set RPM value has been saved.

TIME EDIT FUNCTION

Press the 'TIME' button to set the time value, followed by "+" OR "–" buttons to increase or decrease the time value from 1 to 999 minutes.

On single press of the "+" and "–" buttons, the time can be increased or decreased by 1 min respectively.

In order to fast forward the increment or decrement of TIME setting, press + or - button continuously. (for eg: the increment will jump forward 20, 40, 60... , as long as the "+" button is pressed.)



When the instrument is under operation, to change the time value, press TIME button followed by "+" and "-" key to set the desired Time Value. Once the desired value is set, the set value will blink 5 times on the display and then stops, which confirms that the time value is saved.

If the user wants to run the instrument under continuous mode, after 999 mins one can choose the infinite mode which is shown as "]["

The value in the display window will blink 5 times and then stop, which confirms that the set time value has been saved.

PULSE MODE

The Pulse mode can be activated upon pressing the PULSE button after setting the desired speed and time values.

When PULSE mode is activated, the power LED will be steady on giving indication of activated pulse mode.

This mode automatically alternates the shaking motion in a clockwise & counter clockwise direction every 30 seconds by default.

Pulse time can be changed by holding down the " PULSE" button and subsequently, the pulse LED will steady on. Press the " + " OR " - " to increase or decrease pulse time between the range of 30 to 99 seconds. After having set the desired PULSE value, the set value will blink 5 times on the display and then stop which confirms that the PULSE value is saved.

Note : Upon restarting the system the pulse will reset to default.

9. TIPS FOR EFFICIENT OPERATION

Orbital shaking is a simple way for the mixing of assay components, but simply putting the samples in a micro-plate does not guarantee reaching complete blending after the mixing process.

The adjustment of the optimal mixing speed for micro-plates is dependent on the size of the well and the filling volume. The below table is a short summary for recommended mixing speeds for different micro-plates.

Larger volumes should be mixed with a higher orbit and low speed. Smaller volumes requires a lower orbit, but a much higher speed.

Note : Over filling of wells can lead to spillage.