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English

User Manual

Magnetic Stirrer PCE-MSR 410 / 415



User manuals in various languages (français, italiano, español, português, nederlands, türk, polski, русский, 中文) can be found by using our product search on: www.pce-instruments.com

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1. PRODUCT DESCRIPTION

This manual provides important safety information for this Multistation Stirrer. It should be kept near the equipment for quick & easy reference. This stirrer is specially designed for precise control of stirring speed which allows gentle to vigorous mixing with speed ranging from 300 to 1500 RPM. This unit also comes with a programmable pulse mode for better mixing. This space saving Stirrer is designed with utmost safety and this stirrer is a concealed design meeting IP 42 protection.

2. INTENDED USE

This stirrer is designed for use in chemical and pharmaceutical industry for mixing.

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

3. FEATURES

- Powerful BLDC motor delivers constant speed.
- Microprocessor controlled device with digital display.
- High performance multi position stirrer with 5/10/15 stirring positions with optimum use of laboratory space.
- Variable speed ranging from 300-1500 RPM in steps of 10 RPM.
- Timer setting from 1-999 mins and infinite.
- Programmable Pulse mode - reverses direction for better mixing.
- Closed design allows easy cleaning and protects the equipments from accidental spills.
- Non slip strength rubber feet.

4. TECHNICAL SPECIFICATIONS

Product	PCE-MSR 410	PCE-MSR 415	
Motor Type	BLDC	BLDC	
Number of Stirring positions	10	15	
Max Stirring quantity per position	400 ml	400 ml	
Max Stirring Quantity on Equip(H2O)	4 liters	6 liters	
Speed range	300 to 1500 RPM	300 to 1500 RPM	
Speed control	10 RPM / Step	10 RPM / Step	
Time range	1 to 999 minutes & Infinite	1 to 999 minutes & Infinite	
Recommended Stirring bar length	25 mm	25 mm	
Set-up plate dimensions	460 x 178 mm	460 x 264 mm	

4. TECHNICAL SPECIFICATIONS

Dimensions (W x D x H)	565 x 196 x 75 mm	568 x 282 x 76 mm	
Protection class according to DIN EN	IP 42	IP 42	
Permissible ambient temp.	5 - 40 °C	5 - 40 °C	
Permissible relative humidity	80%	80%	
Weight of Instrument	5 Kg	6 Kg	
Input Voltage	110-220V---0.1A	110-220V---0.13A	
Power Consumption	11 W	15 W	
RS 232 Interface	Optional	Optional	

5. ACCESSORIES

Power Cord, User Manual, Reference Stir Bar.

6. SAFETY INSTRUCTIONS

In order to use this equipment properly & safely every user must read the user manual & observe safety instructions.

1. Do not place any steel or magnetic material on the top surface except beaker or flask with the recommended magnetic stirring bar. Doing this can affect the magnetism of device.
2. Place the device on a flat, stable, clean, non-slippery and fire-proof surface.
3. The top surface must be clean and intact. Use a soft mild cloth to clean.
4. Do not try to stir liquid more than 400 ml with 25 mm magnetic stirring bar per stirring position. It may lead to improper mixing.
5. Wear your personal protective equipment in accordance with the hazardous category of the media to be processed. Otherwise, there is a risk from:
 - ☞ Splashing and evaporation of liquids.
 - ☞ Ejection of parts.
 - ☞ The release of toxic or combustible gases.
6. Properly lift the device with both hands from the base while shifting or installing at other location
7. Do not use damaged beaker, flask, stirring bar or any other component for operation. It may affect the efficiency of device.
8. Reduce the speed:
 - ☞ If the medium splashes out of the vessel because to high speed.
 - ☞ If the appliance is not running smoothly.
 - ☞ If the container moves on the base plate.
9. Wear protective gloves while cleaning the device.
10. Process pathogenic materials only in a closed vessel under a suitable extractor

6. SAFETY INSTRUCTIONS

10. Process pathogenic materials only in a closed vessel under a suitable extractor hood. Do not operate the appliance in explosive atmospheres, with the hazardous substance or under water.
11. Only use such liquids for mixing which will not react dangerously to the extra energy produced through stirring. This also applies to any extra energy produced through external sources. For example: Through light irradiation, through surrounding temperature etc. 
12. Abrasion of the dispersion equipment or the rotating accessories can get into the medium you are working on.
13. The chemical reaction of PTFE can occur when in contact with molten or dissolved alkaline earth metals, as well as with fine partied powders of metals of the 2 and 3 group of the periodical system at temperatures above 300-400 °C. Only elementary fluorine, chlorine trifluoride and alkaline metals do attack PTFE, halogen hydrocarbons have a reversible swelling effect.
14. In case of power failure or mechanical interruption, stirrer will not start automatically after the restoration of power or mechanical parts. Due care  should be taken.

7. INSTALLATION

The multi-position stirrer is provided in a stiffly packed box. Open the box, remove the packaging and gently place the device on the firm & leveled surface. Take care while unpacking & and gently remove all accessories. The user manual should be kept with the device for easy access. Please keep all packaging in safe storage for at least two years for warranty purpose.

7.1 LOCATION & MOUNTING

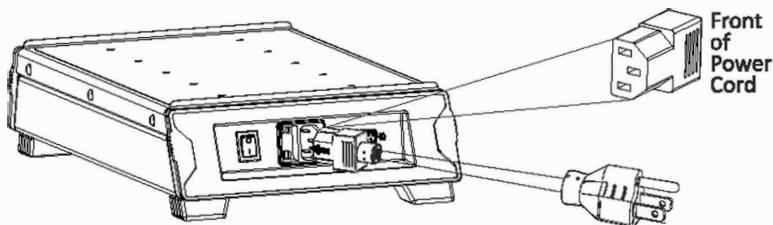
Place the stirrer on a flat and leveled surface; ensure that the four feet of this stirrer stands on the surface firmly. Avoid installing on a slippery surface or surface prone to vibration.

1. Ideal ambient temperature is $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$; avoid placing the unit in direct sunlight.
2. Keep clearance of at least 20 cm from all side to guarantee the cooling efficiency.
3. Keep away from heat or water to avoid sample temperature issues.
4. Do not place the stirrer in a place where it becomes difficult to operate the device.

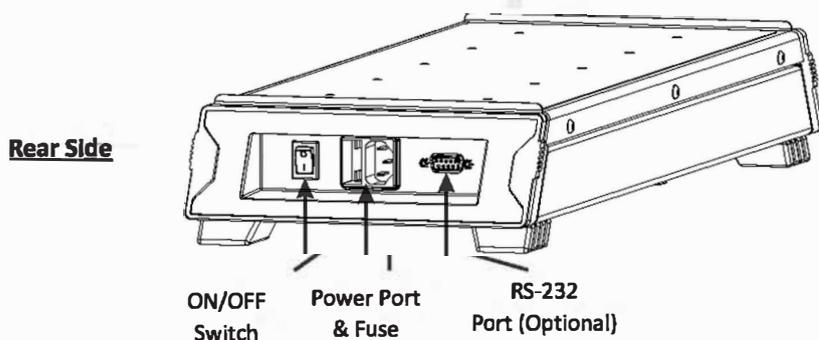
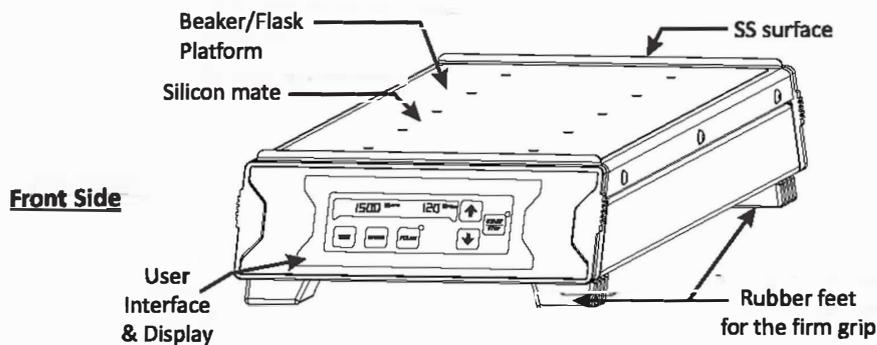
7.2 CONNECTING POWER CORD

1. Connect one end of the power cord to the rear side of stirrer and another end to supply socket as shown in the figure below.
2. Push the power cord firmly for proper connection.

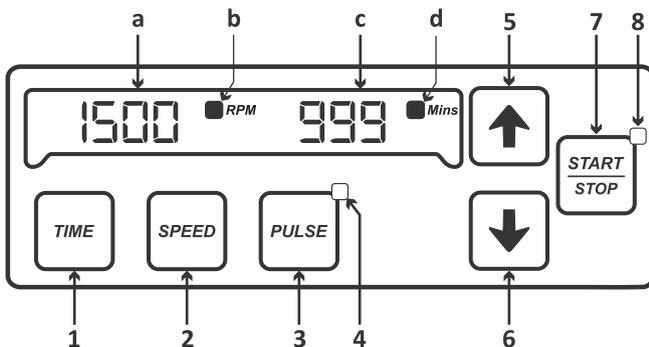
7. INSTALLATION



8. STANDARD PARTS LISTING



9. USER INTERFACE AND DISPLAY



Display			
a) 1500	b) <input type="checkbox"/> RPM	c) 999	d) <input type="checkbox"/> Mins
Display shows current SPEED values	LEDs indicates selection of SPEED	Display shows current TIME values	LEDs indicates selection of TIME

User Interface	
1) Time	: Press "Time " to select time value. Then press "+/-" to set Time value in minutes.
2) Speed	: Press "Speed " to select Speed value. Then press "+/-" to set Speed value in RPM.
3) Pulse	: Press "Pulse " to start pulse mode operation.
4) Pulse LED	Pulse LED glow to indicate Pulse mode activation.
5) Increment	: Press "+/-" " to increase values.
6) Decrement	: Press ""+/-" " to decrease values
7) Start/Stop	: Press "Start/Stop " to start and stop operation.
8) Start/Stop LED:	Glowing LED indicates Start of Operation. Off LED indicates Stop of Operation.

10. TIPS FOR EFFICIENT OPERATION

Use flat, chemical resistant and heat-resistant vessels made up of glass. The vessels should have a thin, even wall thickness. Flat glass bottoms (without any curve on the inside) and smooth surfaces will improve the efficiency of the magnetic stirring bar. Uneven surfaces would reduce the stirring power and would reduce the efficiency of stirring.

Place one magnetic stir bar in each stirring flask. Place the flasks with stir bar right in

10. TIPS FOR EFFICIENT OPERATION

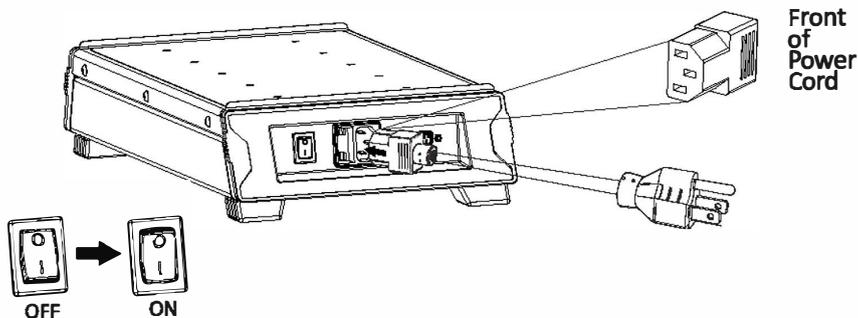
the center of the stirring point on the respective bore of the stirring platform. This will ensure the optimum stirring effect!

In case the magnetic stir bar is not at the center or sets away from the center during the operation, check the flasks/beaker positions and move the flasks/beakers slightly to & fro around the center and place the flasks/beakers on the platform surface such that the magnetic stir bar resumes its normal stirring motion.

If the above-mentioned procedure doesn't work, reduce the speed or amount of sample liquid in the flasks/beakers in case the bar does not stir.

11. OPERATION

11.1 Switch on the Stirrer



After connecting the power cord, switch ON the mains and switch ON the stirrer from rear side as shown in above image.

11.2 Setting Time & Speed

The time in the display is in minutes. The stirrer timer set for operation is in between 1min to 999mins and infinite time mode. Infinite time is seen as "∞". Press "Time" to select time value and press "+ / -" to set time. When time button is pressed, the "Mins" display will blink indicating the time value is selected. Once time value is selected, single press "+/-" will increase or decrease time value by 1min.

Long press increment or decrement button to quickly increase or decrease time value. Time value gets saved after 5 blinks. Timer is a countdown timer showing remaining time left. Once time is over, the stirrer stops.

Speed is displayed as RPM. The minimum and maximum speed of stirrer is 300 RPM and 1500 RPM respectively. When the equipment is used for the 1st time, the speed will be set to zero and shown as "0000". Once speed value is selected, single press

11. OPERATION

“+/-” will increase or decrease speed value by 10 RPM. Long press “+/-” to quickly increase or decrease speed value. Speed value gets saved after 5 blinks.

11.3 Pulse Mode Operation

Press “Pulse” to start pulse mode operation. In pulse mode, the stirring direction will change between clockwise and counter-clockwise direction for every 30 seconds which can be set from 30 to 99 seconds. Upon the selection of “PULSE”, pulse button will glow. Again press the “Pulse” button to STOP pulse operation.

11.4 Programmable Pulse Mode Operation

By default, the pulse mode cycle time is 30 seconds (i.e. 30 seconds clockwise and 30 seconds anti-clockwise). With programmable pulse mode, user can modify cycle time from 30 secs to 99 secs. Long press the pulse button to select pulse mode cycle time. The time display will change to “5 30” where “30” means pulse cycle time in seconds - this indicate that user can now modify pulse cycle time. Then press increment or decrement button to modify cycle time between 30 secs to 99 secs.

11.5 Start & Stop Operation

Once all the parameters like Speed & Time are set, press “Start/Stop” button once to START operation. Once operation starts, the LED adjacent to “Start/Stop” will glow. To STOP operation, again press the “Start/Stop” button. LED adjacent to button will OFF indicating the operation is stopped. Make sure that stirring operation is started only after flask/beaker is placed on the surface. Placing the beaker/flask in between any operation can lead to improper stirring or no stirring at all.

NOTE: Proper stirring is achieved only if beaker/flask is placed before any run operation or only if speed is increased gradually for stirring.

12. 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 electronics 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 electronics equipment (WEEE). According to these regulations, any devices supplied after 13.06.05 in the business to the 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.



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