

# INSTRUCTION MANUAL

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Low Profile Magnetic Stirrer

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**Model No.**

MS 100



**ROCKER**

Please read this instruction manual before using this product.



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# 1. Important Notice

This instrument is designed for laboratory usage only. Please read this manual carefully before installing and operating. The instrument shall not be modified in any way. Any modification will void the warranty and may result in potential hazard. We are not responsible for any injury or damage caused by any non-intended purposes and modifying the instrument without authorization.

## • Instruction

MS 100 is a magnetic stirrer that can be used for mixing. Please evaluated the applicability and risks before operation, the operator should take full responsibility for any risks arising from the use.

1. Check the voltage specified on the name plate and ensure it matches the line voltage in your location.
2. Ensure the base of instrument is clean and intact. Install the instrument in a stable, clean, dust-less, anti-slip, dry and fireproof surface.
3. Use only the power adaptor that supplied with this instrument. Safe operation is only guaranteed with supplied accessories.
4. Do NOT operate the instrument in explosive atmospheres, with hazardous substances or under water.
5. Do NOT spill corrosive liquids on the instrument.
6. The temperature of the instrument may rise under normal use. Do NOT cover it, even partially, with film, cloth to avoid overheating.
7. Mixing can cause danger, e.g. release of toxic or flammable gases. Be aware of risks before operation.
8. Only use medium that will not react dangerously with energy that generated from processing or other ways, e.g. light, sunshine.
9. Please operate in functional fume hood or suitable container when processing hazard substance, such as toxic or pathogenic materials.
10. Please wear full protective equipment when operating to prevent from danger, such as medium splashing, stir bar ejection, etc.

11. If the instrument is damaged, do NOT operate and contact the manufacturer or your service agent for replacement to avoid hazard.
12. Reduce the speed if medium splashes out of container or container shifts on the plate.
13. Be aware of the hazards due to low-boiling flammable medium, improper container size and shift, unstable container.
14. Please unplug the instrument from the power supply when not in use for extended period.
15. Please discard packing material according to local related regulations.

16. Operating condition

(a) Ambient temperature: 5~ 40°C	(d) Altitude: up to 2000 m
(b) Relative humidity: 80% RH Max.	(e) Pollution degree: II
(c) Power supply: 100-240V~, 50/60Hz, 3W	(f) Indoor use



Notice: Effects of magnetic field should be considered, such as pacemaker, data storage, etc.



Do NOT operate the instrument in explosive atmospheres, with hazardous substances or under water.

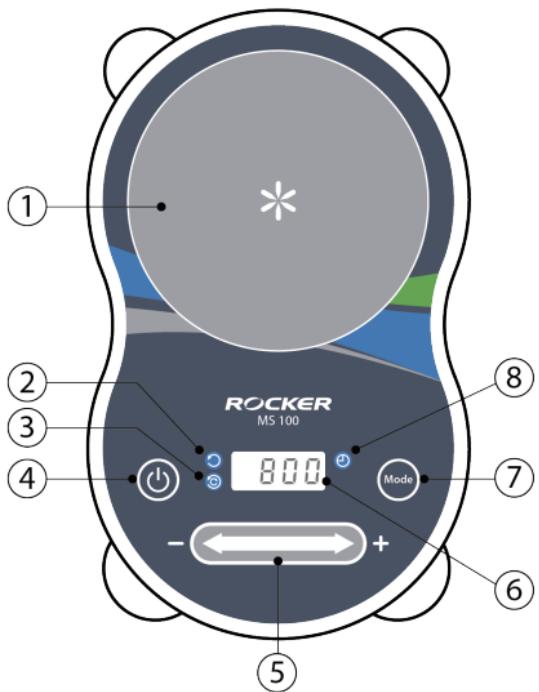
## 2. Unpacking

Please check if the package is complete without any damage before unpacking. When unpacking, please make sure you have all accessories that indicated on the list. If there is any problem, please keep the serial number along with packing case and contact your local distributor immediately for assistance.

Model	Standard Package Includes:	
MS 100	1. MS 100, Low Profile Magnetic Stirrer	X 1
	2. Power Adaptor	X 1
	3. Stirring Bar	X 1
	4. Instruction Manual	X 1



### 3. Main Part Diagram



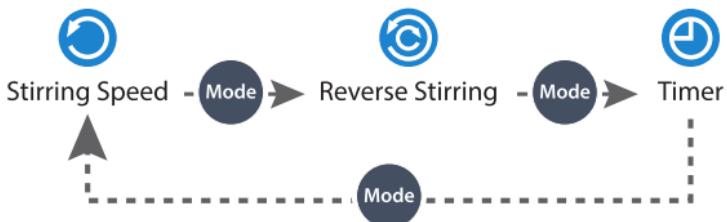
Position	Designation
1	Container Plate
2	Stir Indicator
3	Reverse Indicator
4	Power Switch
5	Slider Bar
6	LCD Display
7	Mode
8	Timer Indicator

## 4. Operation

### (1). Operation



Operation



Setting Switch

- ◆ Install the instrument in a flat and stable surface.

(A) Connect the instrument with supplied power adaptor to power supply.

- ◆ Ensure the voltage specified on the name plate matches the line voltage in your location.

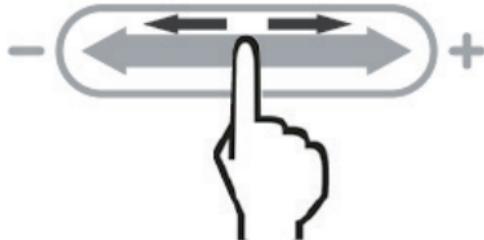
(B) Place the stirring bar into liquid medium that needs to be mixed.

(C) Place the container in the center of container plate.

(D) Turn on the instrument by power switch , the stir indicator  flashes and stirring speed will show on the LCD display.

(E) Use the Mode key  to switch to different setting and relevant indicator flashes. LCD display will show the corresponding parameters.

## 1.1 Stirring Speed Setting



- (A) Press the Mode key  until stir indicator  flashes.
- (B) Touch the slider bar and move finger toward left or right to adjust the stirring speed.
  - ◆ The increment of stirring speed is 10 rpm and total range is 20 ~ 1500 rpm.
  - ◆ The instrument will start stirring 4 seconds after the setting is complete.
- (C) The instrument start stirring with stir indicator  on and LCD display shows current speed.
  - ◆ The stirring speed is adjustable during operation.

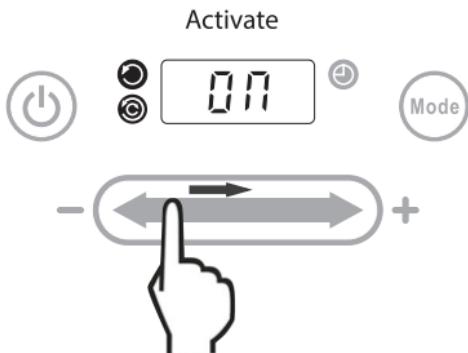
*\* Notice: Irregular shape of stirring bar or undulation bottom of container may cause the stirring bar not to rotate (< 100 rpm) or bounce up (> 1000 rpm). If happens, please increase or decrease the speed until stirring bar moves smoothly and evenly. We recommend using speed that lower than 100 rpm to check whether it rotates stable and smoothly for better mixing.*

## 1.2 Activate / Deactivate Reverse Stirring Mode

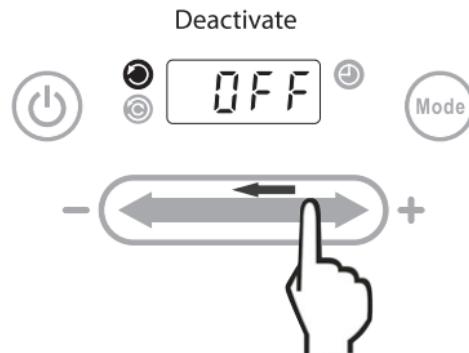
(A) Press the Mode key  until reverse indicator  flashes.

(B) Touch the slider bar and move finger toward right (+) or left (-) to activate or deactivate the reverse stirring mode.

- ◆ The instrument will start stirring 4 seconds after the setting is complete.
- ◆ In reverse stirring mode, stirring bar rotates in opposite direction every 45 seconds and pauses for 5 seconds.
- ◆ When deactivate the reverse stirring mode, LCD display shows current speed with reverse indicator  off.

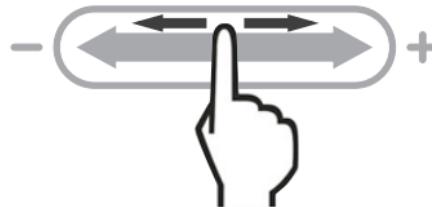


Slide finger toward right (+) direction  
until LCD display shows "ON"



Slide finger toward left (-) direction  
until LCD display shows "OFF"

### 1.3 Timer Setting



- (A) Press the Mode key  until timer indicator  flashes.
- (B) Touch the slider bar and move finger toward left or right to adjust the timer setting.
  - ◆ The increment of timer is 5 minutes and total range is 0:00 ~ 9:00 (H:MM).
  - ◆ Timer set as 0:00 to deactivate the timer setting with timer indicator  off.
  - ◆ The instrument will start stirring 4 seconds after the setting is complete.
- (C) The instrument start stirring with timer indicator  on and LCD display shows countdown timer.
- (D) The instrument shuts down automatically when timer reaches zero.

### 1.4 Switch Off and Auto-Save

While the instrument is switched off manually or automatically, the parameters including stirring speed, reverse mode, timer will be saved and memorized.

## 5. Maintenance

1. Unplug the power adaptor before cleaning.
2. The instrument is not autoclavable. Please clean the surface by pure water or 75% ethanol and keep the surface clean and intact.
3. Minimize exposure to moisture and liquid. If there's any solution drop or splash to instrument, please switch off and unplug it immediately and clean the surface to prevent damage from penetration or corrosion.
4. We recommend wearing protective gloves to avoid danger from residual substances during cleaning, maintenance and repair work.
5. We only recommended using cleaning detergents listed below. Alternate cleaning detergent may cause damage to the instrument.

If Your Sample Is:	Recommend Cleaning Detergents	If Your Sample Is:	Recommend Cleaning Detergents
Dye	Isopropanol (IPA)	Construction material, Cosmetics	Aqueous solution with surfactant, Isopropanol
Food, Fuel oil	Aqueous solution with surfactant		

## 6. Troubleshooting

Some issues may not be fault of the instrument. Please check the table below to troubleshoot before contacting manufacturer or your service agent.

Problem	Reason and Solution
Failed to start	<ul style="list-style-type: none"><li>• Loose connection between power line and power adaptor → Reconnect the power line and power adaptor firmly.</li><li>• Loose plug of power adaptor → Reconnect plug to power supply securely.</li></ul>
Stirring bar does not rotate	<ul style="list-style-type: none"><li>• Magnetized material of container, e.g. iron, copper → Use glass, plastic or other container that will not be magnetized.</li><li>• Inappropriate diameter of container and stirring bar → Replace a larger container or a short stirring bar</li><li>• Irregular shape of bottom of container → Increase the speed or replace a container with flat bottom.</li></ul>
Stirring bar bounces irregularly	<ul style="list-style-type: none"><li>• Container is far from center of container plate → Position container right on center of container plate.</li><li>• Inappropriate stirring bar → Use stirring bar that recommended for model.</li><li>• Irregular shape of stirring bar or the bottom of container → Increase or decrease the speed or replace a container with flat bottom till it rotates smoothly and evenly.</li></ul>

## 7. Specification

Model	MS 100
Power input	DC12V, 0.4A
Max. stirring quantity (H <sub>2</sub> O)	1L
Display	LCD
Speed range	20~1500 RPM
Stirring direction	Counterclockwise, Reverse stirring
Timer	(1) Countdown timer: 0:05~9:00 (H:MM), (2) Continuous mode (0:00)
Stirring bar length	25~30mm
Set-up plate material	Polyester
Set-up plate dimensions	Ø 10 cm
Power	3 W
Dimension (LxWxH)	18 x 11 x 1.2 cm
Net weight	200 g

## 8. Ordering Information

203100-01	MS 100, Low Profile Magnetic Stirrer, AC100-240V, 50/60Hz, US plug
203100-10	PTFE Magnetic Stirring Bar, Ø 3.6 x 25 mm

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