

User manual

Magnetic Stirrer with Heating
Magnetic Stirrer

04661-43

04661-44

04661-45

04661-46



- Stir
- Heat
- Timer

04661-29

04661-30



- Stir
- Timer

04661-39

04661-40

04661-41

04661-42



- Stir
- Heat

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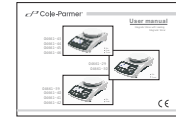
Model: 04661-43 04661-44 04661-39 04661-40 04661-45 04661-46 04661-41 04661-42

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Standard accessories



User manual ×1









Stirring bar ×1



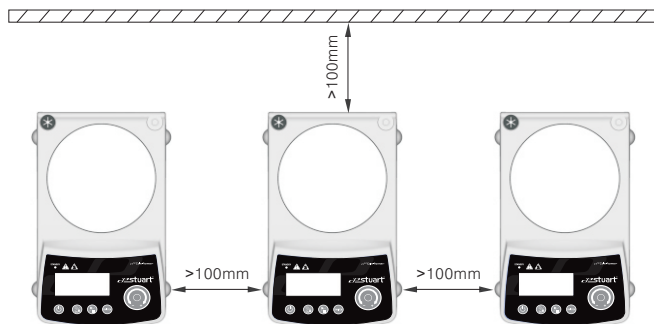
Power line ×1

Safety instructions

- When operating the magnetic stirrer, please follow the safety instructions, the accident prevention regulations, and pay attention to your occupational health.
-  Notice: Effects of magnetic field should be taken into account (e.g. data storage, cardiac pacemakers...)
-  Risk of burns! The heating plate can reach a high temperature of 280 °C when the stirrer is working. Please exercise caution when touching the outer housing and the heating plate. Pay attention to the residual heat even after the instrument is shut down.
-  Ensure that the power cord does not make contact with the heating plate.
-  Wear appropriate protective equipments when operating.
Otherwise there may be risks from:
 - Splashing of medium
 - Ejection of stirrer bar
 - Release of toxic or flammable gases
- Place the instrument on a stable, clean, anti-slip, dry and fireproof surface.
- Ensure the base of instrument is clean and intact.
- Check and ensure the instrument and accessories remain intact before each use. Do not use damaged components.
- Slowdown the speed if
 - The medium splashes out of container in high speed
 - The container shifts on the plate
-  Beware of hazards due to:
 - Flammable materials
 - Low-boiling flammable medium
 - Improper container size
 - Overflows of the medium
 - The container is in an unsafe condition
- The instrument may be heated up under normal use.
- The medium in the container can still be heated up due to high speeds rotation of the magnetic stirrer bar, even if the heating function is not on.
- Process pathogenic materials only in airtight container within a suitable fume hood.
-  Do not operate the instrument in explosive atmospheres, with hazardous substances or under water.

Safety instructions

- Only use medium that will not react dangerously with the energy generated through processing or through other ways e.g. light irradiation.
- Safe operation is only guaranteed with the accessories described in the 'Optional accessories' section.
- Please use the accessories listed on the manual in accordance with the operating instructions.
- Ensure that the external temperature sensor is immersed in the medium when connected to thermometer(Pt1000s).
- Accessories must be securely installed and firmly attached to the instrument and the centre of gravity of the assembly must lie within the surface on which it is set up.
- Always disconnect power before installing accessories.
- The instrument can only be disconnected from the power supply by pulling out the power plug.
- ⚠ Caution: Do not spill corrosive liquids on the instrument! Do not use the instrument under water!
- ⚠ Caution: High voltage! The appliance should be opened only by professionally trained maintenance and repair personnel.
- The mains voltage must be in accordance with the voltage marked on the nameplate
- Unplug the instrument from the electric outlet if it will be unused for a long period of time.
- Do not cover the device with cloth or plastic film, or the instrument will be overheat.
- Keep the instrument and accessories from pressing and colliding.
- The minimum distance between the instrument and above should be 800mm.
- Ensure the distance between the instruments and the distances between the instrument and the surrounding walls is at least 100mm.



Maintenance and cleaning

- Keep the surface of the plate clean and intact.
- Unplug the power line before cleaning.
- Minimize exposure to moisture when cleaning instrument.
- Wear protective gloves when cleaning.
- We only recommend using the cleaning methods listed below, using alternate cleaning methods may cause damage to the instrument.

Suggested cleaning methods:

Dyes-----Isopropyl alcohol

Construction materials-----Water containing active agent / isopropyl alcohol

Cosmetics-----Water containing active agent / isopropyl alcohol

Foodstuffs -----Water containing active agent

Fuels-----Water containing active agent

Warranty

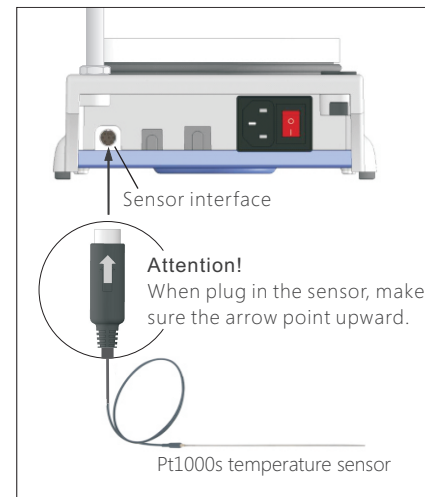
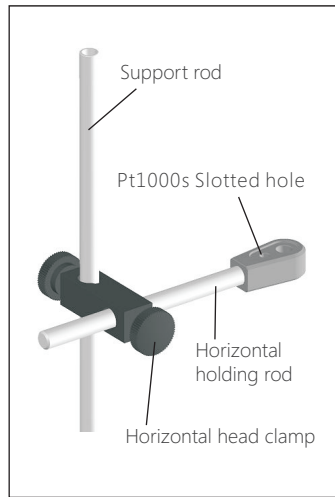
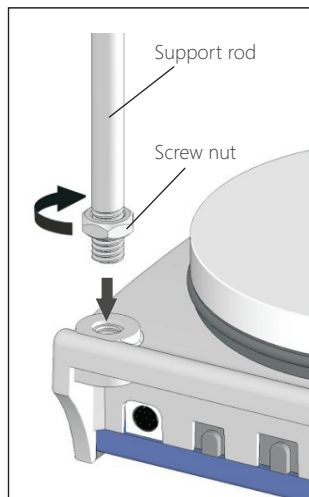
- This instrument is warranted for a period of 24 months from the date of invoice. For claims under the warranty please contact **Cole-Parmer** . After receiving confirmation from our warranty department, you will be liable for freight costs.
- The warranty does not cover normal wear and tear of parts or accessories, nor does it apply to improper use, abnormal operation or insufficient maintenance which is not in accordance with the instructions in this user manual.
- Make sure the instrument is clean and free from any materials that may harm people before sending for repair.
- Please send the instrument back to **Cole-Parmer** in its original packaging. If you couldn't find the original packaging, ensure to use suitable packaging to protect the instrument during transportation.

Support rod installation

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If using external temperature sensor to measure temperature of the medium, please install support rod, horizontal head clamp, horizontal holding rod and external temperature sensor.

- 1 Remove the white protective cap of the tapped hole
- 2 Remove the protective cap from support rod
- 3 Screw the support rod into the tapped hole, until the end stop is reached
- 4 Using a wrench to tighten the nut on the support rod
- 5 Install horizontal head clamp and horizontal holding rod as illustrated
- 6 Install external temperature sensor

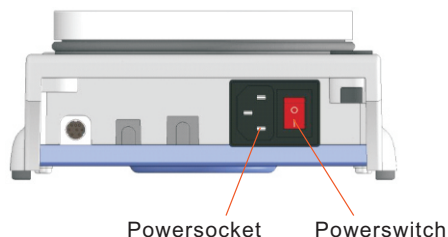


Switching on

Model: 04661-43 04661-44 04661-39 04661-40 04661-45 04661-46 04661-41 04661-42

Preparation before start up

- 1 Check that the power voltage is in accordance with the voltage marked on the nameplate and the electric outlet is well grounded. The instrument may be damaged and there may be security problem if someone does not strictly follow the above instruction. The instrument should be operated under appropriate temperature and humidity according to the technical parameters in this manual.
- 2 Set the power switch on the back of the device to the “O” (Power off) position.
- 3 Connect the power line.
- 4 If using external temperature sensor to measure temperature of the medium, please plug the sensor connector into the sensor interface on the back of the instrument.



Mode	04661-43	04661-39	04661-45	04661-41
Supply voltage	115V \pm 10%			
Power frequency	~50/60Hz			

Mode	04661-44	04661-40	04661-46	04661-42
Supply voltage	220V \pm 10%			
Power frequency	~50/60Hz			

Switching on


- 1 Set the power switch to the “ I ” (Power on) position and the “Standby” indicator will be lit and the system enters into standby status.
- 2 Press  (power on / off) to activate the instrument, and then the standby indicator will go off.

Plate overview

Model: 04661-43 04661-44 04661-39 04661-40 04661-45 04661-46 04661-41 04661-42



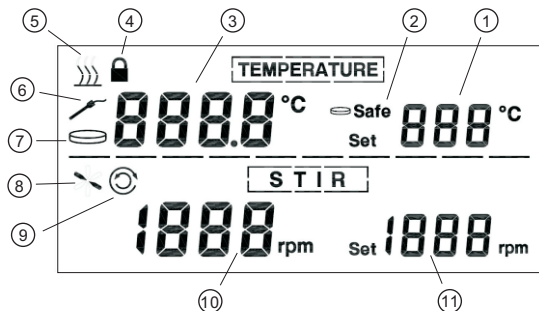
How to use the touch wheel

Touch and move your finger around the “Touch wheel” clockwise+ / counterclockwise- (follow the direction of the arrow) to adjust the setting of different configuration with the adjustable increment. The faster the movement of the finger the larger the adjustment of the setting parameter and vice versa so that one can rapidly adjust to the desired configuration zone and then slow down the finger movement to accurate position.

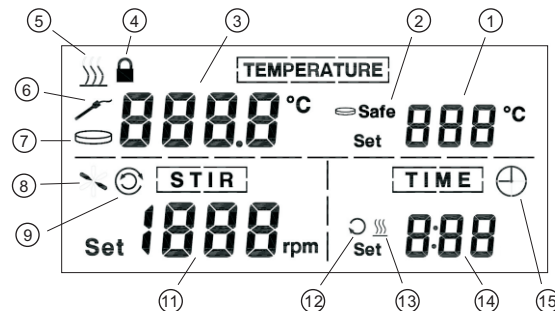


LCD display

Model: 04661-39 04661-40 04661-41 04661-42



Model: 04661-43 04661-44 04661-45 04661-46

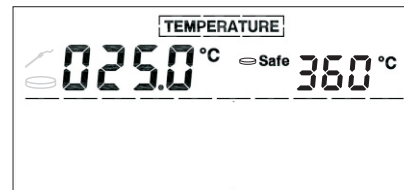


Item Designation

- | | | | | |
|----------------------------|---------------------------------|----------------------------|-------------------------------------|---------------------------|
| ① Setting temperature | ② Plate safety temperature icon | ③ Real-time temperature | ④ Key-lock icon | ⑤ Heating icon(Dynamical) |
| ⑥ External sensor icon | ⑦ Heating plate icon | ⑧ Stirring icon(Dynamical) | ⑨ Reversible/Intermittent mode icon | |
| ⑩ Real-time stirring speed | ⑪ Stir setting speed | ⑫ Stir timing icon | ⑬ Heat timing icon | ⑭ Timer setting time |
| ⑮ Timing icon(Dynamical) | | | | |

- ⚠ Notice! If using an external temperature sensor (Pt1000s) to measure the temperature of the liquid medium, user must connect the **external temperature sensor** and probe into the liquid medium before activating the heating function. Do not remove the **external temperature sensor** during the heating, otherwise the internal components will be damaged.
- ⚠ Do not set the safety temperature higher than the ignition point of the medium used. The safety temperature should be set at least 25 degrees lower than the ignition point of the medium.

- 1 Press **⏻** (Power on/off) until standby indicator goes off and the system enters into setting operation status. The LCD screen will be lightened and **⚖ Safe** (Plate safety temperature icon) will flash showing that the system is now in the setting area of plate safety temperature;
- 2 When the safety temperature setting is switched on, then touch and move your finger around the **"Touch wheel"** (clockwise+ / counterclockwise-) to adjust the setting data of safety heating temperature with the adjustable increment of 1°C, and total adjustable range is 50°C ~360°C. After setting the safety temperature, the heated top plate temperature will not exceed the setting safety temperature to keep the liquid medium from damage;
- 3 After the safety temperature is finished, press **▶/■** (Start/Stop) or **"Switch"** key to record and save the **safety temperature** setting and system will automatically switch to heating temperature setting area;
 - If the safety temperature is not been set in 15 second, the indicator on the LCD screen will be deemed to be the safety heating temperature and the system will automatically switch to heating temperature setting area;
 - The safety temperature can only be set right after pressing **⏻** button, and cannot be set again during operation. Once the safety heating temperature is set, it cannot be adjusted again until next start up.





⚠ Notice




The setting of plate safety temperature is to make sure the sample liquid will not be damaged. However if the initial plate temperature is too low, it will slow down the heating speed, therefore, if the plate temperature, considering the sample liquid, is allowed to be set higher than the safety temperature, please set the plate to the highest safety temperature 360°C, it will help to accelerate the heating speed.


Setting heating temperature **Model:** 04661-43 04661-44 04661-39 04661-40 04661-45 04661-46 04661-41 04661-42

Start heating

- 1 Press **"Switch"** key until the **"Set"** indicator on the temperature setting section flashes and the system will enter into heating temperature setting status;
- 2 When the heating temperature setting is switched on, then touch and move your finger around the **"Touch wheel"** (clockwise+ / counterclockwise-) to adjust the heating temperature with the adjustable increment of 1°C;



Model		04661-45	04661-46	04661-41	04661-42	04661-43	04661-44	04661-39	04661-40
Plate temperature setting range		Room temperature – 340°C				Room temperature – 260°C			
Sensor temperature setting range		Room temperature – 320°C				Room temperature – 160°C			

- 3 Press  (**Start/Stop**) to start stirring after temperature setting, and the heating indicator  will be shown on. When the temperature of the hotplate is higher than 50°C, the hot top alter indicator  will be on;


- Notice:**
1. When setting the heating temperature, the "heating temperature" must be 10°C less than the "Plate safety temperature"
 2. When  (**Start/Stop**) is pressed and the set temperature is lower than the actual temperature measured by the temperature sensor, the system will not perform the heating operation.
 3. Do not heating the hotplate without Liquid in the container.

- 4 During the heating, user can repeat the above 1, 2 steps to alter the temperature setting.

Stop heating

To stop heating, press **"Switch"** key until the **"Set"** indicator on the heating setting section flashes and the system entering into stirring speed setting status, then press  (**Start/Stop**) to stop heating and the heating indicator  will disappear.


Risk of burns!

When the temperature of the hotplate is higher than 50°C even after the device is shut down, the **"Hot warning indicator"**  will not stop flashing until the temperature of the hotplate is lower than 50°C

Setting stirring speed

Model: 04661-43 04661-44 04661-39 04661-40 04661-45 04661-46 04661-41 04661-42


Start stirring

- 1 Press “Switch” key until the “Set” indicator on the stir setting section flashes and the system will enter into stirring speed setting status;
- 2 When the stirring speed setting is switched on, then touch and move your finger around the “Touch wheel” (clockwise + / counterclockwise -) to adjust the stirring speed;
- 3 Press ►/■ (Start/Stop) to start stirring, and the stir indicator  will be shown on and rotate;


Rotation speed range							
04661-45	04661-46	04661-41	04661-42	04661-43	04661-44	04661-39	04661-40
100 – 1800RPM				100 – 1600RPM			

Speed adjustable increment							
04661-45	04661-46	04661-41	04661-42	04661-43	04661-44	04661-39	04661-40
10RPM				20RPM			

Model: 04661-43 04661-44 04661-45 04661-46




Model: 04661-39 04661-40 04661-41 04661-42



- 4 During the stirring, user can repeat the above 1, 2 steps to alter the speed setting.

Stop stirring

To stop stirring, press “Switch” key until the “Set” indicator on the stir setting section flashes and the system entering into stirring speed setting status, then press ►/■ (Start/Stop) to stop stirring and the stir indicator  will disappear.



Reversible / Intermittent stirring function

Activate / inactivate reversible / intermittent stirring function



Reverseible stirring function			
04661-45	04661-46	04661-41	04661-42

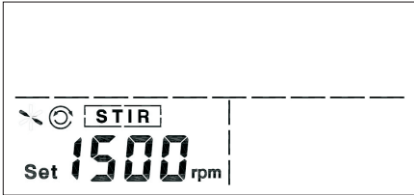
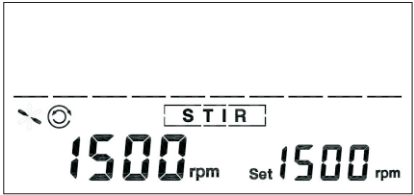
Intermittent stirring function			
04661-43	04661-44	04661-39	04661-40

Activate

When the stirring function is switched on, one can press the  (function key) to activate the reverse stirring mode, and the **Reverse / Intermittent stirring mode indicator**  will be shown on. The stir bar will reverse stirring direction every 45 seconds with a 5 second break before every change.

Inactivate

When the reverse stirring mode is active, press  to turn off reverse stirring function, and the **Reverse / Intermittent stirring mode indicator**  will be off.

<p>Model: 04661-43 04661-44 04661-45 04661-46</p> 	<p>Model: 04661-39 04661-40 04661-41 04661-42</p> 
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Enable the timer

Notice: The timer can only be enabled when heating or stirring function is activated

- 1 Press “**Switch**” key until the “**Set**” indicator on the timer setting section flashes and the system will enter into timing function setting status;
- 2 When in timing function setting status, user can touch and move finger on the “**Touch wheel**” to adjust the timing with the adjustable increment of 5 minutes and the time range of 0 – 9 hours;
- 3 When finished setting, press ►/■ (**Start/Stop**) to start countdown with the **timer indicator** ⌚ shown on the LCD screen.

Timing heating function

If there is only heating function activated before user sets the timer, user can press ►/■ (**Start/Stop**) to active heating timer, the **timer indicator** ⌚ and the **heating indicator** 🔥 will be shown on the LCD screen simultaneously, and the device goes on heating until the timer countdown finishes.



Timing stirring function

If there is only stirring function activated before user sets the timer, user can press ►/■ (**Start/Stop**) to active stirring timer, the **timer indicator** ⌚ and the **stirring indicator** 🌀 will be shown on the LCD screen simultaneously, and the device goes on stirring until the timer countdown finishes.



Timing stirring & heating function

If both stirring and heating functions are activated before user sets the timer, user can press ►/■ (**Start/Stop**) to active both stirring and heating timer, the **timer indicator** ⌚, the **stirring indicator** 🌀 and the **heating indicator** 🔥 will be shown on the LCD screen simultaneously, and the device goes on stirring and heating until the timer countdown finishes.





Disable the timer

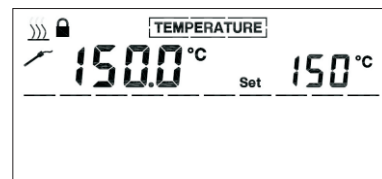
If user wants disable the timer, user can press “**Switch**” key until the “**Set**” indicator on the timer setting section flashes and the system will enter into timing function setting status; Press ►/■ (**Start/Stop**) to stop countdown with the **timer indicator** ⌚ disappear from the LCD screen.

Locking function



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Activate

Press  (Function key) for more than 2 seconds in operation status, as a result, all the keys on the operation panel will be locked, and the “Lock indicator”  will be shown on the LCD while all keys stop working.




Inactivate

Press  (Function key) for more than 2 seconds when the lock function is on, as a result, the lock function will be off, and the “Lock indicator”  will disappear while all keys start working again.


Switch off and data saving

Model: 04661-43 04661-44 04661-39 04661-40 04661-45 04661-46 04661-41 04661-42

Power off


- 1 Press  (Power on/off) then the device will go on standby and the “Standby” indicator will lit.
- 2 Set the power switch on the back of the device to the “O” position, the “Standby” indicator will go out and the device will be turn off.

Risk of burns!

When the temperature of the hotplate is higher than 50°C even after the device is shut down, the “Hot warning indicator”  will not stop flashing until the temperature of the hotplate is lower than 50°C

Notice: Unplug the instrument from the electric outlet before being left unused for a long period of time.

Auto save function

When using  to turn off the instrument, the related parameters will be saved automatically and the system will automatically restore the previous settings next time when user restarts the instrument.

Before contacting your supplier in case of an issue, please check below for troubleshooting some common issues.

Problem	Possible causes	Solutions
Instruments does not power on	The power line and the power outlet is disconnected	Make sure the power line correctly connected with the power socket
	The power socket is in poor electrical contact condition or un-powered	Replace the power outlet with the one in good electrical contact condition
Stir bar bounces irregularly	Container is too far from plate center	Position directly on center of plate
	Mismatch of stir bar specifications and models	Use stir bar recommended for model
	Irregularities in the shape of the stir bar and of the bottom of the container	Increase or decrease the speed until the stir bar begins to rotate evenly
Stir bar does not rotate	The material of the container is Fe or Cu which will be magnetized	Use glass or 304 stainless steel container
	If container diameter is same as stir bar length. When stirring speed is slow, stir bar touches the container which leads to stop	Use a big container or change to shorter stir bar
Figures on LCD flash for no reason or operation key does not function	The power voltage is lower	Turn off other high power instrument or add another A.C.stabilized voltage power supply

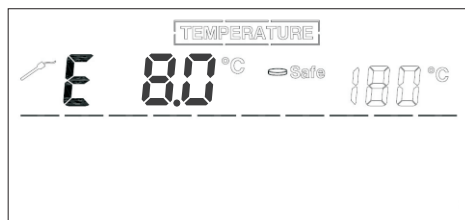
Error Code

Error code display on the LCD screen when a malfunction occurs during operation

Code	Cause	Effect	Solution
E 0.0	Temperature inside device too high	Heating function shutdown	Turn off the device and wait for it to cool down
E 2.1	Heating parts malfunction	Heating function shutdown	Turn off the device -Warning! Only an authorized maintenance and repair personnel can carry out an internal checking on the heating parts
E 2.2	Heating circuit malfunction		
E 4.0	Motor control circuit malfunction	Heating function shutdown. Motor shutdown.	Turn off the device -Warning! Only an authorized maintenance and repair personnel can carry out an internal checking on the motor
E 4.1	Motor get stuck		
E 4.2	Motor malfunction		
E16.1	Temperature control sensor malfunction	Heating function shutdown	Turn off the device -Warning! Only an authorized maintenance and repair personnel can carry out an internal checking on the temperature sensor
E32.1	External temperature sensor is plugged out during heating process	Heating function shutdown	Turn off the device and restart it
E32.2	External temperature sensor malfunction	Heating function shutdown	Replace the malfunctioned Pt1000 Temperature sensor or the external contact temperature sensor

Code	Cause	Effect	Solution
E 8.0	Safety temperature circuit malfunction	Heating function shutdown	Turn off the device –Warning! Only an authorized maintenance and repair personnel can carry out an internal checking on the safety temperature circuit
E16.2	Temperature safety sensor malfunction	Heating function shutdown	Turn off the device –Warning! Only an authorized maintenance and repair personnel can carry out an internal checking on the temperature sensor
E16.3	Difference between temperature of safety sensor and temperature of control sensor is larger than 20°C when not heated		
E16.4	Difference between temperature of safety sensor and temperature of control sensor is larger than 20°C when heated		
E64.0	Surface temperature of the base plate is higher than the set safe temperature	Heating function shutdown	Switch off device until the surface temperature of the base plate is lower than the selected safe temperature limit

Example of LCD screen displays Error code



Technical data

Model	04661-45	04661-46	04661-41	04661-42	04661-43	04661-44	04661-39	04661-40
Maximum stirring quantity(H ₂ O)	20L				5L			
Motor output	5W				3W			
Rotation Speed range	100 – 1800RPM				100 – 1600RPM			
Stirring function	Reversible stirring function: 45 seconds				Intermittent mode: 45 seconds			
Heating power output	600W				300W			
Heating temperature increases speed(1L H ₂ O)	6.5°C/min				3.5°C/min			
Safety temperature setting range	50 – 360°C				—			
Plate temperature setting range	Room temperature – 340°C				Room temperature – 260°C			
Sensor temperature setting range	Room temperature – 320°C				Room temperature – 160°C			
Plate temperature control accuracy	±5°C							
External temperature sensor(Pt1000) accuracy	±1°C							
Timer	0 – 9 hours	—			0 – 9 hours	—		
Display	LCD							
Stirring bar length range	20 – 80mm				20 – 50mm			
Heating Plate Material	Aluminum alloy ceramic coating							
Heating Plate Size	Ø 135mm							
Dimensions (W x D x H)	175 x 270 x 76mm							
Weight	2.3kg				1.8kg			
Power input	630W				320W			
Permissible ambient temperature	5 – 40 °C (In operation)							
Permissible relative moisture	80%							
Storage temperature	-10 – 70 °C							
IP protection class (DIN EN 60529)	IP 42							

User manual

Magnetic Stirrer

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04661-30

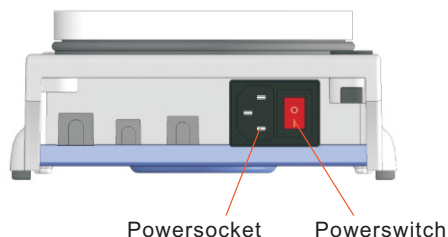


- Stirr
- Timer

Switching on

Preparation before start up

- 1 Check that the power voltage is in accordance with the voltage marked on the nameplate and the electric outlet is well grounded. The instrument may be damaged and there may be security problem if someone does not strictly follow the above instruction. The instrument should be operated under appropriate temperature and humidity according to the technical parameters in this manual.
- 2 Set the power switch on the back of the device to the “O” (Power off) position.
- 3 Connect the power line.



Mode	04661-29	04661-30
Power voltage	115V \pm 10%	220V \pm 10%
Power frequency	~50/60Hz	

Switching on

- 1 Set the power switch to the “|” (Power on) position and the “Standby” indicator will be lit and the system enters into standby status.
- 2 Press  (Power on / off) to activate the instrument, and then the standby indicator will go off.

Plate overview

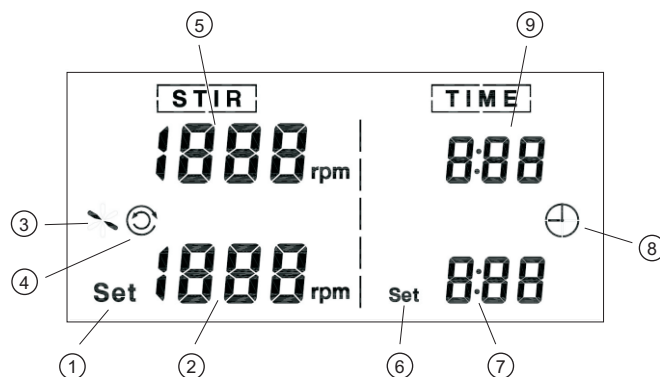


How to use the touch wheel

Touch and move your finger around the “Touch wheel” clockwise+ / counterclockwise- (follow the direction of the arrow) to adjust the setting of different configuration with the adjustable increment. The faster the movement of the finger the larger the adjustment of the setting parameter and vice versa so that one can rapidly adjust to the desired configuration zone and then slow down the finger movement to accurate position.



LCD display




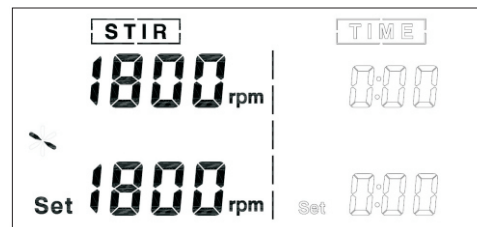
Item Designation

- ① Setting indicator
- ② Stir setting speed
- ③ Stirring icon(Dynamical)
- ④ Reversible mode icon
- ⑤ Real-time stirring speed
- ⑥ Setting indicator
- ⑦ Timer setting time
- ⑧ Timing icon(Dynamical)
- ⑨ Timer remaining time

Setting stirring speed and reverse mode


Start stirring

- 1 Press **"Switch"** key until the **"Set"** indicator on the stir setting section flashes and the system will enter into stirring speed setting status;
- 2 When the stirring speed setting is switched on, then touch and move your finger around the **"Touch wheel"** (clockwise + / counterclockwise -) to adjust the stirring speed with the adjustable increment of 10rpm and total adjustable range is 100 – 1800RPM;
- 3 Press **▶/■ (Start/Stop)** to start stirring, and the stir indicator  will be shown on and rotate;
- 4 During the stirring, user can repeat the above 1, 2 steps to alter the speed setting.







Notice: The liquid will rotate to generate resistance stirring and fluctuation, the motor speed will also change. The actual speed display error $\pm 3\%$ and set the speed, this is the real speed real-time display.

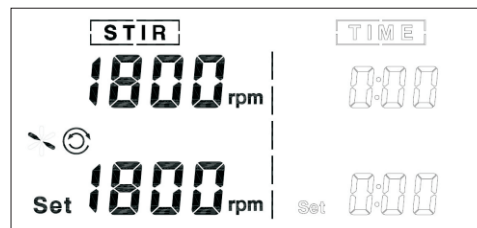
Stop stirring

To stop stirring, press **"Switch"** key until the **"Set"** indicator on the stir setting section flashes and the system entering into stirring speed setting status, then press **▶/■ (Start/Stop)** to stop stirring and the stir indicator  will disappear.

Activate / inactivate reversible stirring function

Activate: When the stirring function is switched on, one can press the  (function key) to activate the reverse stirring mode, and the **reverse stirring mode indicator**  will be shown on. The stir bar will reverse stirring direction every 45 seconds with 5 second break before every changing.

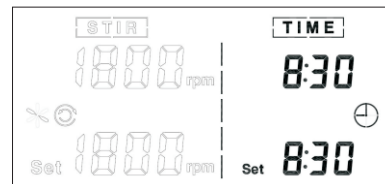
Inactivate: When the reverse stirring mode is active, press  to turn off reverse stirring function, and the **reverse stirring mode indicator**  will be off.



Setting the timer

Enable the timer

- 1 Press **“Switch”** key until the **“Set”** indicator on the timer setting section flashes and the system will enter into timing function setting status;
- 2 When in timing function setting status, user can touch and move finger on the **“Touch wheel”** to adjust the timing with the adjustable increment of 5 minutes and the time range of 0 – 9 hours;
- 3 When finished setting, press **▶/■ (Start/Stop)** to start countdown with the **timer indicator** ⌚ shown on the LCD screen. The remaining time shows on the LCD.



Disable the timer

If user wants to disable the timer, user can press **“Switch”** key until the **“Set”** indicator on the timer setting section flashes and the system will enter into timing function setting status; Press **▶/■ (Start/Stop)** to stop countdown with the **timer indicator** ⌚ disappear from the LCD screen.

Switch off and data saving

Power off

- 1 Press **⏻ (Power on/off)** then the device will go on standby and the **“Standby”** indicator will lit.
- 2 Set the power switch on the back of the device to the **“ O ”** position, the **“Standby”** indicator will go out and the device will be turn off.

Notice: Unplug the instrument from the electric outlet if being unused for a long period of time.

Auto save function

When using **⏻** to turn off the instrument, the set speed / set time will be saved automatically and the system will automatically restore the previous settings next time when user restart the instrument.

Troubleshooting guide

Before contacting your supplier in case of issue, please check below for troubleshooting some common issues.

Problem	Possible causes	Solutions
Instruments does not power on	The power line and the power outlet is disconnected	Make sure the power line correctly connected with the power socket
	The power socket is in poor electrical contact condition or un-powered	Replace the power outlet with the one in good electrical contact condition
Stir bar bounces irregularly	Container is too far from plate center	Position directly on center of plate
	Mismatch of stir bar specifications and models	Use stir bar recommended for model
	Irregularities in the shape of the stir bar and of the bottom of the container	Increase or decrease the speed until the stir bar begins to rotate evenly
Stir bar does not rotate	The material of the container is Fe or Cu which will be magnetized	Use glass or 304 stainless steel container
	If container diameter is same as stir bar length. When stirring speed is slow, stir bar touches the container which leads to stop	Use a big container or change to shorter stir bar
Figures on LCD flash for no reason or operation key does not function	The power voltage is lower	Turn off other high power instrument or add another A.C.stabilized voltage power supply

Technical data

Model	04661-29	04661-30
Maximum stirring quantity(H ₂ O)	20L	
Motor output	5W	
Rotation Speed range	100 – 1800RPM	
Reverse of rotation direction	45 seconds	
Timer	0 – 9 huors	
Display	LCD	
Stirring bar length range	20 – 80mm	
Heating Plate Material	Aluminum alloy ceramic coating	
Heating Plate Size	Ø 135mm	
Dimensions (W x D x H)	175 x 270 x 76mm	
Weight	2kg	
Power input	30W	
Permissible ambient temperature	5 – 40 °C (In operation)	
Permissible relative moisture	80%	
Storage temperature	-10 – 70 °C	
IP protection class (DIN EN 60529)	IP 42	



Toll-Free: 1-800-323-4340

Phone: 1-847-549-7600

Fax: 1-847-247-2929

Coleparmer.com