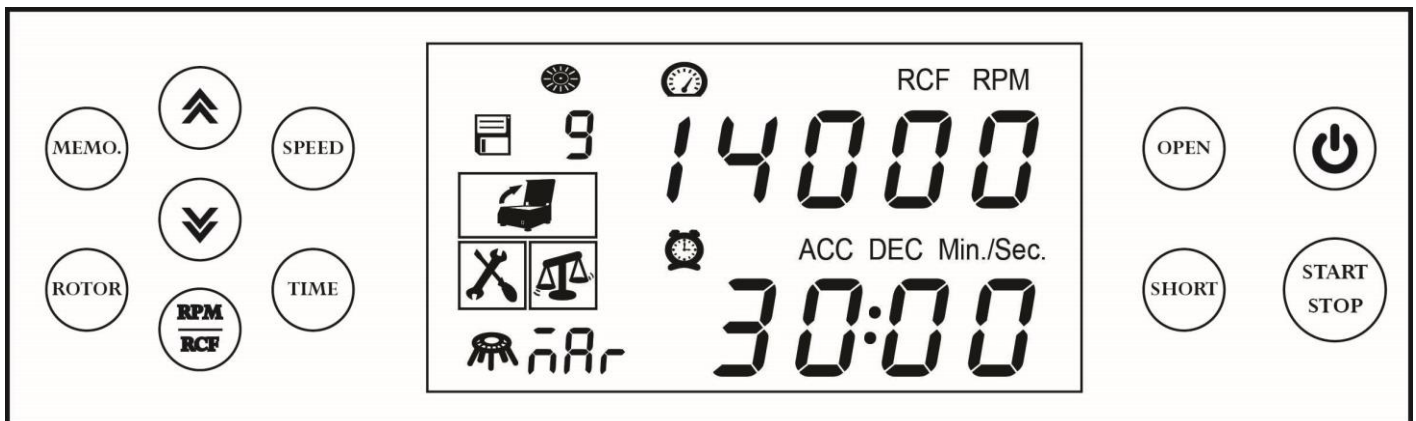
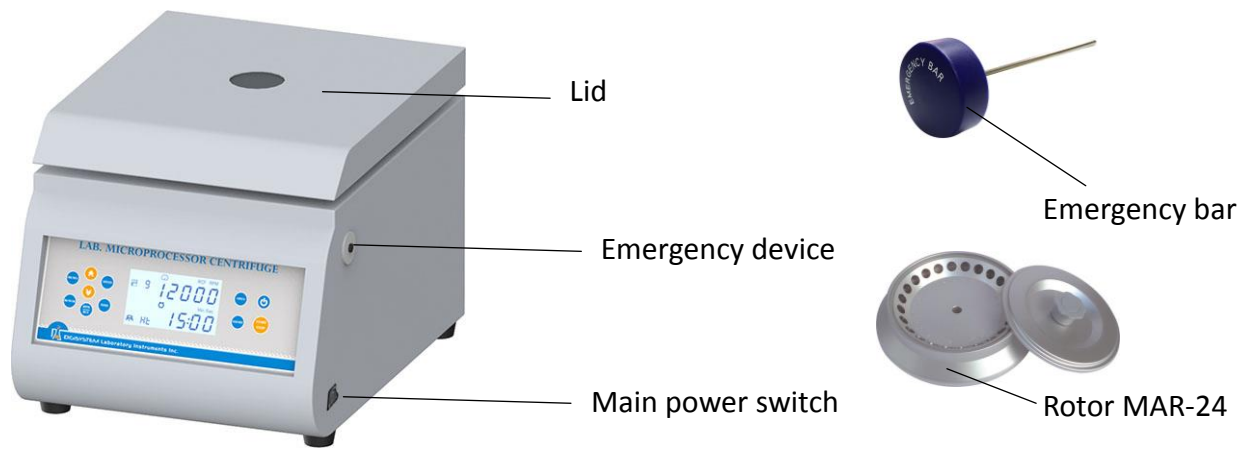





Instruction Manual for Microprocessor Micro Centrifuge (DC brushless motor)

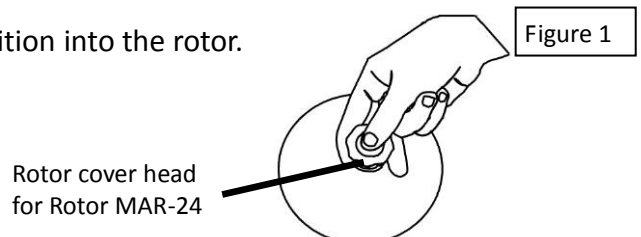











































Warnings:

- * Do not open the lid before the centrifuge stops completely.
- * Do not remove the centrifuge during operation.
- * Do not put objects on the top of the lid.
- * Do not disassemble the centrifuge by yourself. In the event of a malfunction, the centrifuge should be repaired by a qualified technician. Before repairing, turn off the power.

Steps:

1. Place the centrifuge on a flat surface. Plug the centrifuge into a properly grounded outlet. Turn on the main power switch on the right side of the centrifuge.
2. Push the button , and then the screen is illuminated. Press the button  to open the lid. The icon  is flash on the screen. Use your two fingers to hold the "Rotor cover head" as shown in "Figure 1" and use your thumb to press down on the center of "Rotor cover head", and then lift the cover. Insert an even number of tubes in a symmetrical position into the rotor.







3. Put down and press down the lid. Make sure the lid is closed well. The icon  will disappear on the screen.
4. Push the button , the speed value is flash on the screen. Push the button  or  to set the speed value. Push the button  or any other function button to enter the speed value.
5. If you want to set RCF value instead of setting Speed value, please push the button . The icon RCF will appear on the screen, and the speed value is flash on the screen. Push the button  or  to set the RCF value. Push the button  or any other function button to enter the RCF value.
6. Push the button , the time value is flash on the screen. Push the button  or  to set the seconds. Push  again to set minutes. Push the button  or any other function button to enter the time value.
7. Push the button  to switch the speed value (RPM) and RCF value.
8. Push the button  to set rotor number, in case two rotors have been included. Push the button  or  to choose the rotor (MAR-24 or HT-24). Push the button  to set the rotor.
9. After setting parameters, push the button  to start the centrifuge. During operation, push the button  to stop the centrifuge.
10. Push the button  to start the centrifuge directly. Release the button and the centrifuge will stop immediately. The centrifuge will run to the current speed setting value.
11. Using memory program setting:
 - 10.1 How to use memory program: push the button , the icon  is flash on the screen. Push the button  or  to choose the memory number 1,2,3, ..., 9. Then, push the button  to start the centrifuge
 - 10.2 Parameter setting: Push the button , the icon  is flash on the screen. Push the button  or  to choose the memory number 1,2,3, ..., 9. Push the button  to set the speed or RCF value. Push the button  to set the time value. Push the button  to set rotor. Push the  button to finish the memory setting.
 - 10.3 How to exit the memory mode: Push the button . Push the button  or , until there is no number beside the icon . (Note: Another way to exit the memory mode. Push the button  to turn off the power, and then push the button  again to exit the memory mode.)

11. Under the conditions of power failure or the open function failure, please remove the plug at right hand side of machine and insert the “Emergency Bar” into the hole to force the lid open.



Other functions: (Under no operation condition, it can execute other functions.)



1. Adjust the contrast of the characters on the screen:

1.1 Push the button , and do not release. At the same time push the button  to increase the contrast. The icon ACC is flash on the screen.

1.2 Push the button , and do not release. At the same time push the button  to decrease the contrast. The icon DEC is flash on the screen.

2. Adjust the brightness of the background of the screen:

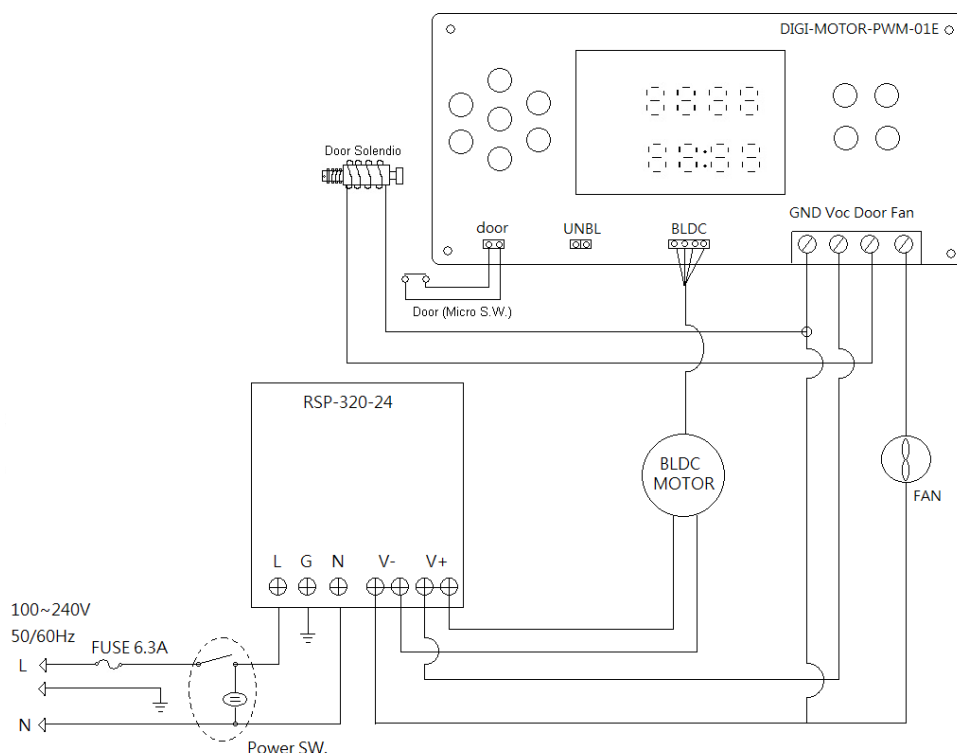
2.1 Push the button , and do not release. At the same time push the button  to increase the brightness. The icon ACC is flash on the screen.

2.2 Push the button , and do not release. At the same time push the button  to decrease the brightness. The icon DEC is flash on the screen.

Maintenance and care:

1. Keep the centrifuge clean all the time. Cleaning can be done with a damp cloth. Avoid the use of solvents as they may damage the product housing, rotor.
2. Check if the rotor is in the center. In case, the rotor is slanted. Stop using machine and contact the distributor for repair.













Circuit Diagram:













Service Manual


Troubleshooting Guide

Caution: Always disconnect the power cord before troubleshooting.

Trouble / error message	Cause	Remedy
Motor is not working   	<ol style="list-style-type: none"> Foreign bodies block the motor. Motor is defective. 	<p>Turn the main power switch off, and then turn it on again.</p> <ol style="list-style-type: none"> Sweep away foreign bodies. Contract the distributor for repair.
Over heat   	<ol style="list-style-type: none"> Over time use. Motor is defective. 	<p>Turn the main power switch off, and then turn it on again.</p> <ol style="list-style-type: none"> Stop using to let the centrifuge cool down. And then restart it. Contract the distributor for repair.
Over current   	<ol style="list-style-type: none"> Rotor is overloaded ° Motor is defective. 	<p>Turn the main power switch off, and then turn it on again.</p> <ol style="list-style-type: none"> Reduce the loading on the rotor. Contract the distributor for repair.
Over voltage   	<ol style="list-style-type: none"> Switching power is defective. 	<p>Turn the main power switch off, and then turn it on again.</p> <ol style="list-style-type: none"> Contract the distributor for repair.

  EL	1. When the motor is rotating, push the button  .	1. Waiting for motor stop completely, and then push the button  , and then close the lid to restart the centrifuge.
Unbalance   EU	1. Rotor is unbalanced. 2. The surface which the centrifuge is on is not flat.	1. Open the lid and set the rotor to be balanced. 2. Place the centrifuge on a flat surface.
Lid open error   Ed	1. During operation, the lid is open.	1. Waiting for the motor stop completely. And close the lid.
Speed error   Er	1. Motor, PC board, or switching power is defective, so the speed can't reach to the setting value.	1. Contract the distributor for repair.
No display on the screen	1. Power is off. 2. Dead power output ° 3. Burnt fuse 4. PC board is defective.	1. Turn on the power. 2. Change to a different output. 3. Replace a new fuse. 4. Contract the distributor for repair.
Burnt fuse	1. Fuse is wasted 2. Switching power is defective.	1. Replace a new fuse. 2. Contract the distributor for repair.
Lid can't be open	1. Lid lock is defective. 2. PC board is defective. 3. PC board is crashed.	1. Contract the distributor for repair. 2. Contract the distributor for repair. 3. Turn off the main power switch, and turn on the power again.
Noise is too loud.	1. Rotor is unbalanced. 2. Rotor type setting is not correct.	1. Stop the machine. Open the lid and set the rotor to be balanced. 2. Please check and re-set the rotor.
The rotor is slanted	1. Motor mount is worn-out.	1. Contact your distributor for repair.

Note: To clear the error message **EP, EL, ER, EU**, turn the main power switch off, and turn on it again.

For the other error messages, push the button  to clear them.