



Operations Manual

Item: R4040 and R4045 (-E) V1.0

Roto-Bot

PROGRAMMABLE ROTATOR



I. Specifications:

Speed: Adjustable from 1 to 99, (1 to 80rpm)*

Capacity: R4040: 6 x 50ml R4045: 12 x 50ml

Timer: 1 min to 99hr 59 min / Cont.

Dimensions: (wxdxh)

R4040: 29 x 13.7 x 19.9 cm (11.4 x 5.4 x 7.8 in.)

R4045: 41 x 13.7 x 19.9 cm (16.1 x 5.4 x 7.8 in.)

Weight: R4040: 4lbs / 1.8kg R4045: 5lbs / 2.27kg

Electrical: 100 to 240VAC, 50-60Hz, 3A

Operating environment: 4°C (cold room) to 70°C

Warranty: 2 years

*Maximum speed may be limited in modes with a mixing function.

II. Product Set-Up:

Place the rotator on a clean and stable surface. Ensure that there is at least 3 inches of open space both in front of and behind the instrument.

Plug the instrument into an outlet of the appropriate voltage (100 to 240V). Press and hold the power button for 3 seconds, the instrument powers on.

III. Tube Holder Installation / Exchange:

The instrument includes an assortment of tube holders. To exchange the tube holders, remove the rotational bar from the instrument by unscrewing the thumb screw on the left side. Once fully loosened the bar can now be removed by pressing it fully to the right and then lifting the left side upward. Tube holders can be installed or removed from the rotational bar by sliding them in either the left or right direction.

To load test-tubes, press them firmly into the appropriate holder. ALWAYS ensure a balanced load across both sides of the rotational axis. (When mixing 15 and 50ml tubes, always load a similar quantity of tubes on each side of the rotational axis.)

IV. Product Operation:

Choose the Mixing Mode: Press the "Mode" to toggle through the available modes:

F1 – F9 Rotational Modes

C1-C2 Custom Modes

--- Short Rotational Mode (aggressive mixing)

Set the Rotational Speed:

After choosing the mode, the rotational speed can be selected by pressing the up and down keys to adjust the display to the desired speed setting. (Level: 1 to 99)

Set the Run Time and Frequency:

Press the "SET" key so that the run time is flashing. Once flashing, use the up and down keys to select the desired run time. Press the "SET" key again to

adjust the frequency. When the frequency is flashing, use the up and down keys to adjust the frequency. NOTE: The frequency is only adjustable in modes that include a shaking segment. The frequency permits the user to adjust the distance travelled during the shaking segment. Choose a small frequency for short distance (vibrating mixing).

Starting and Stopping the Rotator:

Once the settings are finalized, press the "Start/Stop" key to begin the rotation. To stop the rotator before the time has expired, press the "Start/Stop" key. NOTE: The mixer may continue rotating for up to 1 second to return to the "home" position.











V. Custom Modes (C1-C2)

The C1 & C2 modes can be used to create your own personal mixing cycle by linking up to 6 mixing functions together.

To begin, use the "MODE" key to select mode C1 or C2 and then press the "SET" key. Choose the first mixing function by pressing the "MODE" key to toggle between CLOCKWISE rotating, COUNTERCLOCKWISE rotating, PAUSE, FREQUENCY or OFF. When choosing a CLOCKWISE or COUNTERCLOCKWISE rotation, press the up and down keys to determine the length of the rotation (from 1 to 360°). When choosing a PAUSE function, use the up and down keys to choose the length of the pause in seconds (1 to 99 sec.) and when choosing a FREQUENCY function, choose the length of the frequency angle from 1 to 9. Once your first mixing action has been configured, press the "SET" key to advance to the next action. After the sixth setting, press "SET" to select the SHAKE TIME. The shake time refers to the length of time the rotator will conduct in FREQUENCY mode. Once selected, press the "SET" key to advance to select the total run TIME. Then press the "SET" key to store all selections.

Press the Up & DOWN keys to select the speed and press the "START/STOP" key to begin the cycle.

V. Mode Chart:

MODE display	Movement Icon	Program Description
F1		360° Continuous Rotating Mode
F2		360° Continuous Rotating Mode with one pause segment
F3		360° Continuous Rotating Mode with two pause segments.
F4		360° Continuous Rotating Mode with one shaking segment and one pause segment
F5		360° Continuous Rotating Mode with two shaking segments and one pause segment
F6		360° Continuous rotating mode with three shaking segments
F7		Clockwise Rotation with three pause segments followed by counter-clockwise rotation with three pause segments. Repeat
F8		Clockwise Rotation with two shaking segments and one pause segment followed by counterclockwise rotation with two shaking segments and one pause segment - Repeat
F9		Clockwise Rotation with three shaking segments followed by counterclockwise rotation with 3 shaking segments - Repeat
C1 & C2		Customization Modes
---		Short clockwise rotation followed by short counter clockwise rotation (for aggressive mixing)

V1. Rocking Mode

When purchasing the option rocking platform, the rotator **MUST** be programmed to enter the **PP Mode** (Platform Rocking Mode). To enter this mode, press and hold the "SET" key for 10 seconds.

Set the Rotational Speed:

After choosing the mode, the rotational speed can be selected by pressing the up and down keys to adjust the display to the desired speed setting (Levels: 1 to 50).

Set the Run Time and Rocking Angle:

Press the "SET" key so that the run time is flashing. Once flashing, use the up and down keys to select the desired run time. Press the "SET" key again to adjust the rocking angle. When the frequency is flashing, use the up and down keys to adjust the angle.

Manually Adjusting the Rocking Platform:








Prior to starting a rocking cycle, the user **MUST** manually adjust the platform to the home position. Ensure that no sample have been loaded on the platform and press the "Start/Stop" key. The platform begins to rock. Manually adjust the platform by hand so that the peak of each rocking step is equidistant from the horizontal position.

Once manually configured, the samples can now be loaded onto the platform.

Starting and Stopping the Rotator:

Once the settings are finalized and the platform has been manually configured, the samples can be loaded and the "Start/Stop" key can be pressed to begin the rotation. **NOTE:** The platform requires manual configuration after each time that the stop key is pressed.

VII. Accessories:

Image	Item	Max Qty. R4040	Max. Qty. R4045
 6 x 1.5ml (pk/2)	R4040-1520	10 holders 60 tubes	16 holders 96 tubes
 1 x 15ml (pk/2)	R4040-150	10 Tubes	22 Tubes
 1 x 50ml (pk/2)	R4040-500	6 Tubes	12 Tubes
 6 x 15ml Horizontal	R4040-15HZ	1 Holder 6 Tubes	2 Holders 12 Tubes
 6 x 50ml Horizontal	R4040-50HZ	1 Holder 6 Tubes	2 Holders 12 Tubes
 Rocking Platform	R4040-RP	6 x 5.5 in.	N/A
 Rocking Platform	R4045-RP2	N/A	6 x 10 in.

IV. Care and Maintenance:

No routine maintenance is required other than to keep the unit clean. Cleaning can be done with a damp cloth. Avoid the use of harsh solvents.

Service and Contact: In the event that service or technical support is required, please contact **Benchmark** by phone at **1-908-769-5555** or by email at info@benchmarkscientific.com.