



REVSCI
REVOLUTIONARY SCIENCE

The *RevCycler*

Instruction Manual

Instruction Manual for the Revolutionary Science RevCycler PCR Series



REVOLUTIONARY SCIENCE

Manufacturer of Precision Laboratory Equipment

Table of Contents

Introduction	2
Recommended Safeguards	3
Operating Instructions	4
Care and Maintenance	4
Calibration	6
Specifications	7
Contact Us	8
Registration	8
Warranty	8
Warranty Registration Card	8
Checklist	9
Notes and Service Record	10
Troubleshooting	11

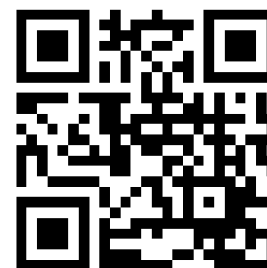
NOTE: This manual contains important information, safeguards and operating instructions for the operation of the REVOLUTIONARY SCIENCE RevCycler Series by Alternative Pioneering Research & Development, Inc. (APR&D, Inc.)

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REVOLUTIONARY SCIENCE

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Revolutionary Science
Shafer, MN
USA

Troubleshooting

Symptom	Fault	Action
Temperature on the display is higher than the actual	RevCycler may be in need of calibration	See calibrations instructions in the manual
Temperature on the display is lower than the actual	RevCycler may be in need of calibration	See calibrations instructions in the manual
Display screen does not turn on	Power switch must be activated	Inspect power switch and repress
	Power cord may be disconnected	Inspect power cord connection
Temperature graph does not show a change in temperature before 2 minutes of cycle starting	The RevCycler is probably functioning properly. There is a programmed delay to allow the heated lid to heat to temperature before denature step.	Wait for 3 minutes while the heated lid heats to temperature.
Temperature graph does not show a change in temperature after 2 minutes of cycle starting	Peltier may need to be replaced	Contact Revolutionary Science
Touch screen does not function properly	Possible defective components	Contact Revolutionary Science

If symptoms persist, please contact Revolutionary Science Support Center at support@revsci.com or call 651-257-0633

Introduction

Thank you for purchasing the Revolutionary Science RevCycler. We are confident that when used correctly, our PCR Machine will provide years of reliable service in your lab or classroom. We have made every effort to use high quality, durable parts to deliver the performance expected of instruments costing 3 to 4 times as much.

Please let us know what you think of our products, positive or negative, so we can continue to enhance and improve our products in the future.

Sincerely,

REVOLUTIONARY SCIENCE

To maximize the use of this Dual RevCycler, please complete this short list before using the product:

1. Examine carton and packaging for possible damage caused during shipping. If damage is present contact carrier at once.
2. Fill out the checklist (page 9 of instruction manual).
3. Carefully read this instruction manual.
4. Fill out warranty registration card and mail it to Revolutionary Science.



Please fill out this page, or a copy of it, and send it to the address below to validate your warranty.

Warranty Registration Card for the

REVOLUTIONARY SCIENCE RevCycler

(Please Print)

Date Purchased: _____ Mod # /Serial #: _____

Purchased From: _____

Name of Purchaser: _____

Company School Individual (Please check one)

Name of institution: _____

Department: _____

Address: _____

Intended use: _____

Where did you hear of our product?: _____

Comments: _____

Mail to: Revolutionary Science

17319 Lake Blvd., Shafer, MN 55074



Recommended Room and Storage Conditions:

- Do not store your PCR machine in direct sunlight, or in dusty or poorly ventilated areas.
- Do not store in a cold or moist room for periods of time.
- Never immerse your PCR machine in water.

Operating Instructions

(1) PLACEMENT:

Place unit on a stable, hard surface away from the edge of the counter and moving equipment.

(2) CONNECTING THE POWER:

Plug the power cord to your PCR Machine into a grounded electrical outlet of the appropriate voltage. The RS-RY-100 requires supply voltage within the range of 100 to 240 volts. Almost any circuit should suffice. Make sure the cord is routed safely away from mechanical hazards and hot surfaces. Avoid routing the cord where others may trip on or snag it.

(3) TO OPERATE THE PCR MACHINE:

1. Turn the PCR Machine off, the entire device must be unplugged from power OR the power switch can be flipped to the "O" position.
2. A white screen will appear and display "Revolutionary Science." This screen will last for a few seconds, followed by the main menu, displaying the default program.
3. The program parameters can be changed by pressing the appropriate location on the screen (anneal is in large print, because it is most commonly changed). The desired parameter will be highlighted in blue when touched. The parameter can be changed by pressing the up and down arrows on the display. To save the program, press the 'Save' button. To run a program, press the 'Run' button.
4. To use the device as a dry bath at a desired temperature, press the 'Hold' button to enter the menu for the dry bath settings (the 4 degree cold hold can be toggled by selecting the Hold menu in the main menu).

(4) RUNNING A CYCLE:

After the 'Run' selection is pressed, the temperature graph will appear. The temperature of the block will not increase for 2 minutes, while the heated lid is heating to 100-110 degrees. After the heated lid increases, the initial denature step will last for five minutes, followed by the PCR cycles. After all cycles are complete, the final extend (elongation) phase will last for 7 minutes, followed by the cold hold if it is selected.



Cycle Parameters:

Program number – Number from 0-19 indicating which heating profile is loaded into memory.

Denature Temperature – Temperature at which DNA is denatured.

Denature Time – Time in which denaturing step is complete.

Anneal Temperature – Temperature at which DNA strands are annealed

Anneal Time – Time in which annealing step is complete.

Elongation (extend) Temperature – Temperature at which DNA polymerase is active and DNA strands are copied.

Anneal Time – Time in which annealing step is complete.

The RevCycler will plot a graph in real time showing these temperature changes. The time in each phase is displayed at the bottom of the screen. This time begins when the sample is at the programmed temperature. The program number, cycle number and current running phase denoted by D,A,,E for each phase are displayed in the lower left corner. The temperature (Celsius) is displayed in the lower right corner.

At the end of the program or when the cancel button is pressed. The peltier will shut off and the screen will go back to displaying the current program.



Registration

For your future reference and to expedite answers to your questions, please complete the following information:

Date Purchased: _____

Serial Number: _____

Model Number: _____

Purchased From: _____

Full Two Year Warranty

The REVOLUTIONARY SCIENCE RS-RY-100 is warranted to be free from defects of material or workmanship under normal use for a period of two years from date of purchase. If your bath proves to be defective within this warranty period, Revolutionary Science will repair or replace your unit at our option. This warranty will be void if malfunction is caused by accident, misuse, or negligence, including tampering, abuse, or damage in transit. This warranty excludes any relief for incidental or consequential damages. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights; you may also have other rights, which may vary from state to state. Your bath comes with several built in safety features. Any attempt to interfere with the operation of these features makes this warranty null and void.

To validate this warranty, be sure to complete and return the Warranty Registration Card, found on page 8.

Contact Us

Mailing address:

Toll Free: (800) 775-7942

Revolutionary Science

Fax: (775) 218-7015

17319 Lake Blvd.

E-mail: support@revsci.com

Shafer, MN 55074 USA

Web site: www.revsci.com

RevCycler Specifications (25 Tubes)

Model No.:	RS-RY-100
Capacity:	25
Uniformity:	Temperature uniformity $\pm 0.25^{\circ}\text{C}^*$
Controller:	Digital microcomputer
Power Requirements:	100-240VAC, 50-60 Hz, 120W
Net Weight:	6 lb.
Outside Dimensions:	10in (depth) x 8in (width) x 6in (tall)
Temperature Range:	Ambient to 99.9°C^*
Warranty:	2 year, repair or replacement

*Measured under controlled laboratory conditions.

Care and Maintenance

Your PCR Machine should be cleaned periodically to ensure optimal performance, cleanliness, and to eliminate contamination. A disinfection cycle can be run by setting the hold temperature for 99.0 degrees for 10 minutes, without any tubes in the block. Clean your REVOLUTIONARY SCIENCE RevCycler only when it is not plugged in. Clean residue from the block using a cotton swab or air compressor.

User Calibration Instructions

NOTE: This device was not calibrated in our factory. Initial and regular calibration is the responsibility of the user.

Setup:

Set temperature on RevCycler and insert thermocouple into the center well in the block, immersed in a few drops of mineral oil or glycerin. Place cover and check accuracy of temperature one hour later. Press and hold the CAL button and follow the instructions on the screen.

NOTE: RevCycler will maintain adjusted calibration if it is turned off or restarted. Calibration may be adjusted anytime.