

PRISM^R

Refrigerated Microcentrifuge

Operation Manual

Version 1.0



www.labnetlink.com



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Declaration of Conformity

Product Name: Prism R Refrigerated Microcentrifuge

Model Names: C2500-R, C2500-R-230V, C2500-R-100V

All models comply with the following European standards:

EMC: EN61326 , EN 55011 (B) ,
EN 61000-3-2 , EN 61000-3-3 , EN 61000-4-2 ,
EN 61000-4-3 ,EN 61000-4-4 , EN 61000-4-5 ,
EN 61000-4-6 , EN 61000-4-11 , EN 61000-6-1 ,
EN 61000-6-2

Safety: EN 61010-1, EN 61010-2-020: 2006

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1. Safety Precautions

Before using the [Prism R](#) refrigerated microcentrifuge for the first time, please read this entire operating manual carefully. To guarantee problem free, safe operation, it is essential to observe the following points:

1.1. Operation Safety Precautions

1. When using infectious, radioactive, toxic and other solutions which may pose health risks, please observe the appropriate safety precautions.
2. Do not use this machine in a potentially explosive environment or with potentially explosive chemicals.
3. Install the machine in location free of excessive dust.
4. Avoid placing the machine in direct sunlight.
5. Choose a flat, stable surface capable of withstanding the weight of the machine.
6. Install the machine in the room temperature 15~30°C, relative humidity 20~80%.
7. Don't block the air vents.
8. **Make sure the power source conforms to the required power supply specifications.**
9. To avoid electric shock, make sure the machine is plugged into a grounded electric outlet.
10. Do not allow water or any foreign objects to enter the various openings of the machine.
11. Switch off the power switch before cleaning or performing any service on the machine, such as replacing the fuses.
12. **The rotor and the rotor lid must always be installed securely on the motor shaft.**
13. **Always load the rotor symmetrically. Each tube should be counterbalanced by another tube of the same type and weight.**

14. **To guarantee sufficient ventilation, ensure that the centrifuge has at least 30 cm of free space on all sides, including the rear.**
15. Repair should be carried out by Labnet International' authorized service personnel only.
16. Use original spare parts and accessories only.

 **Warning Label:** Please be aware of the danger of electric shock or other dangers.

2. General Description

The [Prism R](#) refrigerated microcentrifuges is a compact, bench-top centrifuge which is suitable for both research and clinical laboratories. The motor is brushless and requires no routine maintenance. It is supplied with a 24 x 1.5/2.0 ml rotor for micro samples. The maximum speed of [Prism R](#) is 13,500 rpm (17,135 rcf). The temperature range is from -10°C to 40°C.

2.1. Features

- Brushless motor drive, control speed up to 13,500rpm/17,135xg
- Powerful refrigeration system, maintain 4°C at max. speed
- Includes unique easy access rotor (24 x 1.5ml)
- Exceptionally quiet and compact
- Optional StripSpin adapter available for 0.2ml tubes and strips
- Compact, ergonomic design
- User-friendly operation interface.
- Quick button for instant run without setting
- Low noise level
- Complies with CE, RoHS

3. Getting Started

3.1. Unpacking

The centrifuge is delivered in an external carton and an internal carton with protective PE foam cushions. Remove the centrifuge from each carton. All packaging should be retained until it has been established that the centrifuge is working properly.

Error! Style not defined. Error! Style not defined.

Open the [Prism R](#) refrigerated microcentrifuge package and confirm that all items are included:

- Prism R unit with a 24 x 1.5/2ml rotor and a rotor lid
- Electric fuses (7A & 3.15A)
- Rotor wrench
- Operation manual
- Warranty card
- Power cord

If there are any items missing, damaged, or not according to your order, please contact your distributor or sales representative immediately.

Note: Please use 7A fuse in power source 100~120V/50~60Hz countries, while 3.15A fuse is for power source 200~230V/50~60Hz countries.

3.2. Initial Operation

Place the machine on a stable, flat table. Please keep the machine at least **30 cm** from the surrounding area or objects.

Mains power and frequency **“MUST”** be compatible with the information given on the product label on the rear of the centrifuge.

Connect the power cord to the power socket of the centrifuge, then to the power source. Switch the Power On/Off switch to turn on the centrifuge. After the LCD display is on and the buzzer beeps twice, the centrifuge is ready to operate.

3.3. Opening and Closing the Lid

The lid can be opened only when the centrifuge is powered on. Press  button to open the lid.

The lid will be locked automatically when the user presses down the front edge of the lid.

Note: *Do not slam the lid!*

3.4. Loading the Rotor

For safety reasons, the rotor must be loaded with centrifuge tubes symmetrically. The difference in the weight between the tubes should not exceed 0.1 gram.

The centrifuge tubes should be loaded in pairs opposite each other and each should contain roughly the equal weight of sample. One or two additional loaded tubes may need to be added to achieve this. Please refer Figure 1 to see an example of a properly loaded rotor.

Attention: To reduce air friction and noise, the rotor lid should be attached to the rotor during centrifugation. Make sure that the rotor lid snaps securely into place, by pressing down on center catch.

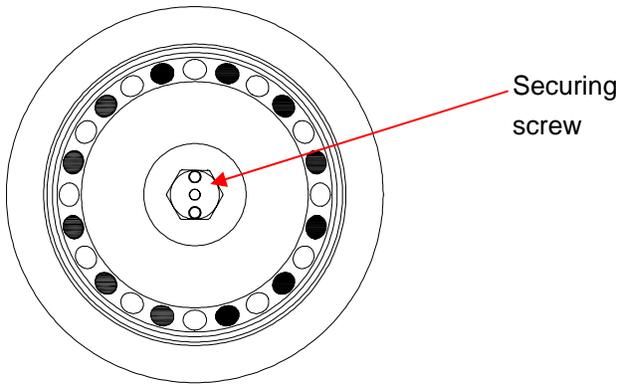


Figure 1. Loading the rotor

3.5. Starting and Stopping a Run

Please refer **Chapter 5 Operation** to set up your preferred settings of time, speed and temperature.

To start a run, press down the  (**START/STOP**) knob.

When the pre-set time expires, the centrifuge will stop automatically. To stop the centrifuge prior to the expiration of set time, press the  (**START/STOP**) knob again.

When the time is set as “**continuous**”(- -), the centrifuge will run continuously. To stop the continuous run, press the  (**START/STOP**) knob.

By pressing and holding the  button, the centrifuge will continue a

short-run of set speed. The short-run will stop if the  button is released.

Note:

1. For safety reasons, the  (**START/STOP**) knob will be inactivated when the lid is open. A symbol “” will be flashing until the lid is closed.

3.6. Emergency Lid Release

When the lid can't be opened by pressing the  button, users can open the lid manually. First, turn off the power of the centrifuge. Second, use a flat-head screw driver or other tool to remove the Emergency Lid Release Plug (Please refer Figure 2) on the right-hand side of the machine. Third, pull the wire (attached to the plug) while gently pushing downward on the lid. The lid will now release.

4. Overview

This section presents an overview of the [Prism R](#) microcentrifuge's various components and control panel (see Figure 2) as well as the symbols and indicators on the LCD display (see Figure 3).

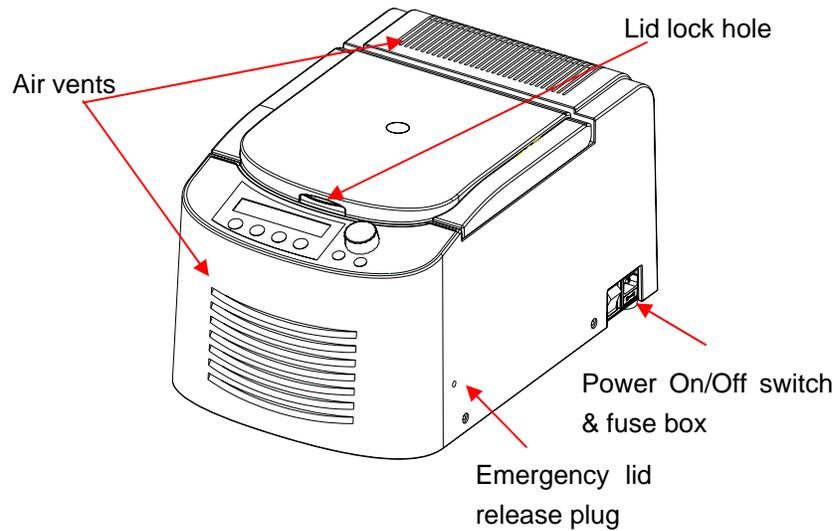


Figure 2. [Prism R](#) refrigerated microcentrifuge overview

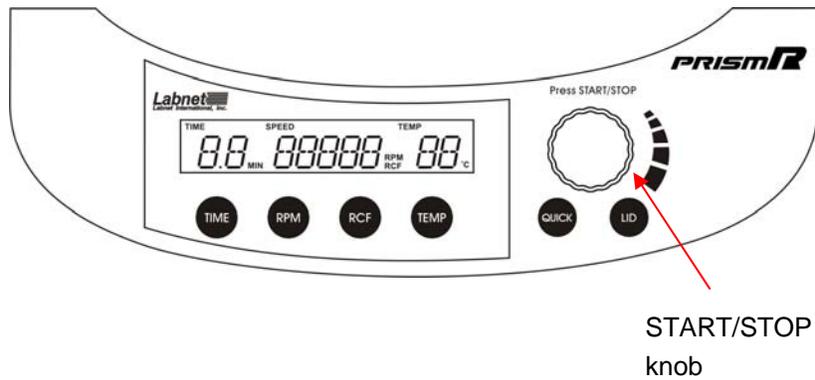


Figure 3. LCD display panel

Keypad Function

Button	Symbol	Function Description
START/STOP and Value Adjustment Knob		<ul style="list-style-type: none"> • Start/Stop a run by pressing down • Rotate to Increase/decrease the values of time, temperature, speed or g force
TIME button		<ul style="list-style-type: none"> • To adjust run time setting
RPM button		<ul style="list-style-type: none"> • To adjust speed setting
RCF button		<ul style="list-style-type: none"> • To adjust RCF setting
TEMP button		<ul style="list-style-type: none"> • To adjust temperature setting
LID button		<ul style="list-style-type: none"> • Open the lid
QUICK button		<ul style="list-style-type: none"> • Quick-Spin centrifugation

Audible Signals

The audible signals are beneficial when you are familiarizing yourself with the operating procedure of the [Prism R](#) refrigerated microcentrifuge. They can also be disabled if desired by pressing  button six times. The audible signal function can be resumed by pressing  button six times again.

Definition of the audible sounds are shown in the table below.

Audible Sound	Operation
2 beeps	Power on machine
3 beeps	End of a run

5. Operation

Users can pre-set the time, temperature and speed (RPM/RCF) before a run.

Attention: Never attempt to operate the centrifuge with rotors or adapters that show signs of corrosion or mechanical damage. Never centrifuge strongly corrosive materials that may damage the rotors, accessories or bowl of the unit.

5.1. Setting the Time (TIME)

Operating time can be selected from 0.5 min to 99 min or “**continuous**”. Press  button to change the time setting. The 2 digits of TIME on the display will flash. Turn the  (START/STOP) knob to increase or decrease the value. Press  button again to confirm the selection or press  (START/STOP) knob to store and run the selection. The flashing of time value will stop and the time value will be stored automatically if no button is pressed after 6 seconds of the adjustment.

Operating time can be set as “**continuous**” by turning the  (START/STOP) knob clockwise or counter-clockwise to make the 2 digits of TIME to display “- -”. When the time is set as “Continuous”, the centrifuge will continue to run without a stop. Press  (START/STOP) knob to end the continuous operation.

5.2. Setting the Speed (RPM)

The speed (RPM) can be selected from 500 to 13,500 rpm. Press  button to change the speed setting. The 5 digits of speed (RPM) on

the display will flash. Turn the  (START/STOP) knob to increase or decrease the value. Press  button again to confirm the selection or press  (START/STOP) knob to store and run the selection. The flashing of RPM value will stop and the RPM value will be stored automatically if no button is pressed after 6 seconds of the adjustment.

5.3. Setting the Centrifugal Force (RCF)

The speed can be selected from 20 to 17,200 x g, too. Press  button to change the RCF setting. The 5 digits of RCF on the display will flash. Turn the  (START/STOP) knob to increase or decrease the value. Press  button again to confirm the selection or press  (START/STOP) knob to store and run the selection. The flashing of RCF value will stop and the RCF value will be stored automatically if no button is pressed after 6 seconds of the adjustment.

5.4. Setting the Temperature (TEMP)

The temperature can be selected from -10 to 40°C. Press  button to change the temperature setting. The 2 digits of temperature on the display will flash. Turn the  (START/STOP) knob to increase or decrease the value. Press  button again to confirm the selection or press  (START/STOP) knob to store and run the selection. The flashing of TEMP value will stop and the value will be stored automatically if no button is pressed after 6 seconds of the adjustment.

5.5. Cooling

The temperature can be set from -10 °C and + 40 °C. The set

temperature can also be changed during the run.

Pre-Cooling

Pre-Cooling starts a temperature-control run at 6,000RPM. It allows the rotor to be cooled down to the new, pre-set temperature quickly. Cooling down from room temperature to 4 °C takes approximately 8 min. (max. 16 minutes.) To activate Pre-Cooling function, press and hold  button, then press  (**START/STOP**) key. Both “RPM” and “TEMP” icons will flash during Pre-Cooling. The Pre-Cooling can be stopped by pressing the  (**START/STOP**) key. The Pre-Cooling will function only when the set temperature is lower than the ambient temperature.

Standby Cooling

When the centrifuge is powered on, the refrigeration system will cool down the chamber to the pre-set temperature before or after the run if the chamber temperature is above the pre-set temperature.

Note:

1. To extend the life cycle of the compressor, **always** remember to inactivate the **Standby Cooling** (by increasing the set temperature above room temperature) or power off the centrifuge when it is not in use.
2. When the lid is open, the **Standby Cooling** will stop after 3 minutes.

5.6. Quick-Spin Operation

The centrifuge can be operated for a short run by pressing and holding the  button. The centrifuge will continue to run as long as the  button is depressed and the time, in seconds, will count up on the time display. The Quick-Spin speed and temperature is based on the last run settings remaining in the memory. The icon “RPM” will flash during Quick-Spin operation.

5.7. Changing the Settings During a Run

Users can change the settings while the rotor is running. Through a one-time pressing of any function buttons ( ,  ,  , ) , the current value will switch into the pre-set value mode.

The to-be-changed value flashes, and can then be changed. Once the display switches into the current value mode after completion of the entered values, the new values are activated.

The new values are stored and executed by pressing the function button again or by waiting 6 seconds.

6. Service and Maintenance

Always unplug the power plug before service and maintenance.

6.1. Centrifuge Service

The brushless motor in the [Prism R](#) requires no routine maintenance. Any required service should be performed by authorized, qualified

personnel only. Repairs performed by unauthorized personnel may void the warranty.

6.2. Cleaning the Centrifuge

Always keep the centrifuge housing, rotor chamber, rotor and rotor accessories clean. All parts should be wiped down periodically with a soft cloth. For more thorough cleaning, use a neutral cleaning agent (pH between 6 and 8) applied with a soft cloth. Excessive amounts of liquid should be avoided. Liquid should not come into contact with the motor. After cleaning, ensure that all parts are dried thoroughly by hand or in a warm air cabinet (Maximum temperature: 50°C).

6.3. Cleaning the Rotor

The rotor should be cleaned after each use. When spinning samples containing phenol or phenol chloroform, the rotor should be cleaned immediately after use

6.4. Disinfection

Should a spill of infectious materials occur within the rotor or chamber, the unit should be disinfected. This should be performed by qualified personnel with proper protective equipment.

6.5. Replacing the Rotor

The [Prism R](#) comes complete with a standard 24-place rotor installed. To remove the rotor, remove the rotor securing screw from the motor shaft by turning the screw, using the rotor wrench on two holes of the securing screw (Please refer Figure 1). Lift the rotor directly upward in a straight vertical motion.

To replace rotor, first make sure the motor shaft and rotor mounting hole are clean. Place the rotor on the motor shaft. Reinstall the rotor securing screw on the motor shaft by turning it clockwise. Hold the rotor with one hand and tighten the rotor securing screw, using the rotor wrench.

6.6. Replacing fuses

Check fuse when it is recommended in the Technical Specifications of this manual. The fuse holder is located in the power inlet on the right-hand side of the unit. Disconnect the power cord from the power inlet. Open the fuse holder drawer by inserting a small screwdriver under the tab and prying it open. Remove the innermost (operative) fuse from its retaining tabs and replace the fuse if necessary. A spare fuse is located in the outer most chamber of the fuse drawer. Replace only with a fuse of the exact same value as the original.

7. Troubleshooting

To ensure the product's quality and performance, the [Prism R](#) refrigerated microcentrifuge is 100% inspected by the manufacturer. Error messages will appear on the display if the [Prism R](#) refrigerated microcentrifuge fails to perform the attempted action properly. In the case of Error (Err) messages or faults, please refer to the solutions in the following table to clear the error messages or faults.

If the following solutions are not able to resolve the problem, please contact Labnet International Inc.' Service Department to arrange for

authorized service.

Symptom	Possible Cause	Solution
“ <i>Lid</i> ” Error	Press  (START/STOP) knob when Lid is open.	Close the lid
	Defective lid lock sensor	Call for service
“ <i>bAL</i> ” Error (rotor imbalance)	Tubes are not inserted symmetrically in rotor holes	Load tubes symmetrically
	Sample liquid in tubes not properly balanced	Make sure that the same volume of liquid is in each tube
	Defective or improperly adjusted balance sensor	Call for service
	Rotor is stuck when a run starts	Call for service
Centrifuge cannot be started, although power is on	Lid not closed correctly	Close lid correctly
	No speed or time has been selected	Set speed and/or time
Centrifuge will not start	No power supply	<ul style="list-style-type: none"> ● Check power source ● Check the power cord connection ● Check the power cord quality
	Blown fuse	Check the fuse and replace if necessary

Lid Lock will not release	Defective lid lock	Open manually and have unit serviced
	No power from PC board	Call for service
	Lid lock jammed	Call for service
	Centrifuge is not receiving power	See "Centrifuge will not start"

Appendix A: Technical Specifications

Model	C2500-R
Max. Speed	13,500 rpm
Max. RCF	17,135 g
Acceleration Time	< 17 seconds
Deceleration Time	< 18 seconds
Temperature Range	-10°C to 40°C
Max. Rotor Capacity	24 x 2.0/1.5ml tubes
Rotor Lid	Easy snap-on type
Time Range	0.5 to 99 min. or "continuous"
Admissible Sample Density	1.2Kg/ml
Noise at Max. Speed	56 dB
Operating Temperature	5°C to 30°C
Operating Humidity (RH)	20~80%

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Power Supply	100V/50~60 Hz, 6.0A 110V/ 50~60 Hz, 5.5A 230V/ 50~60 Hz, 2.8A
Dimensions (W x L x H)	280 x 430 x 248 mm
Weight (with Rotor)	22 Kgw
Certification	Complies with CE, Class B (EN60101-1-2, EN 55011) Complies RoHS

Note:

1. Specifications are subject to change without prior notice

Appendix B: Warranty

[Prism R](#) refrigerated microcentrifuges are covered by a warranty for two years against defects in materials and workmanship. This period begins from the date of purchase, and within this period all defective parts will be replaced at no charge by Labnet International Inc. The warranty does not cover defects caused by excessive wear and tear or damage due to shipping, accident, abuse, misuse, problems with electrical power, or usage not in accordance with product instructions, or if other than original spare parts supplied by the manufacturer have been used. Each [Prism R](#) refrigerated microcentrifuge is tested and documented by the manufacturer before shipping. Labnet International Inc.' Quality Control System guarantees that the performance of the [Prism R](#) refrigerated microcentrifuge you have purchased is within its specifications.

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