

Prism™ Microcentrifuge

User Manual



C2500
C2500-100V
C2500-230V



About This Manual

This manual is designed to assist you in the optimal usage of your Labnet Prism Centrifuge. The manual is available in English, French, German, Italian, Portuguese, and Spanish on our website at www.labnetinternational.com/document-control

Safety Precautions

NEVER use the centrifuge in any manner not specified in these instructions.

NEVER operate the centrifuge without a rotor properly attached to the shaft.

NEVER tighten rotor nut by hand only.

NEVER fill tubes while they are in the rotor. Liquid spillage may harm unit.

NEVER put hands in the rotor area unless the rotor is completely stopped.

NEVER move the centrifuge while the rotor is spinning.

NEVER use solvents or flammables near this or other electrical equipment.

NEVER centrifuge flammable, explosive or corrosive materials.

NEVER centrifuge hazardous materials outside of a hood or proper containment facility.

ALWAYS load the rotor symmetrically. Each tube should be counter balanced by another tube of the same type and weight.

ALWAYS locate the centrifuge within easy access to an electrical outlet.

ALWAYS use only microcentrifuge tubes made from plastic and designed to withstand centrifugal forces of at least 21,200 x g.

ALWAYS use a wrench to tighten the rotor nut.

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1. General Information

This manual provides important safety information for the Labnet Prism Microcentrifuge. It should be kept near the centrifuge for quick and easy reference.

1.1 Description

The Labnet Prism Microcentrifuge is a small bench top centrifuge designed for separation of various research samples. The motor is brushless and requires no routine maintenance. The Prism is supplied with a 24 x 1.5/2.0ml rotor for micro sample tubes. Adapters are available for tubes smaller than 1.5ml. The Prism reaches speeds of up to 15,000rpm/21,200 x g.

1.2 Safety precautions

Note: All users of the centrifuge must read the Safety Precautions section of this manual before attempting to operate the unit! If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Do not operate the centrifuge if any of the following conditions exist:

- The centrifuge has not been installed properly
- The centrifuge is partially dismantled
- Service has been attempted by unauthorized or unqualified personnel
- The rotor has not been installed securely on the motor shaft
- Rotors and accessories not belonging to the standard range are being used without permission being obtained from the manufacturer to use such rotors and/or accessories in the centrifuge

Exception: Microcentrifuge tubes made of plastic, normally available in the laboratory.

- The centrifuge is located in an explosive atmosphere
- Materials to be centrifuged are combustible and/or explosive
- Materials to be centrifuged are chemically reactive
- The rotor load is not properly balanced
- The rotor nut was not tightened with a wrench

1.3 Technical data

Dimensions (W x D x H)	9.8 x 13.8 x 7.48 inches
Maximum speed	15,000rpm
Maximum RCF	21,200 x g
Maximum volume	24 x 2.2ml
Timer	0.5 to 99 minutes or continuous
Admissible sample density	1.2kg/dm ³
Electrical/fuse rating	120V~, 50-60Hz, 1.9A, 5 AT 230V~, 50-60Hz, 1.1A, 2.5 AT
Operating temp./humidity	0°C to 40°C / ≤80%RH

1.4 Accessories supplied with centrifuge

Each unit is supplied with 1 instruction manual, 1 warranty card, 1 power cord, a standard angle rotor and a rotor removal tool.

1.5 Warranty

Prism microcentrifuges are covered by a warranty for 1 year 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. 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 microcentrifuge is tested and documented by the manufacturer before shipping. Labnet's Quality Control System guarantees that the performance of the Prism microcentrifuge you have purchased is within its specifications.

2. Installation

2.1 Unpacking the centrifuge

Before unpacking the centrifuge, inspect the outside of the carton for any shipping damage. The centrifuge is delivered in a carton with protective foam cushioning. Remove the centrifuge from the carton. Retain the carton and cushioning until it has been established that the centrifuge is working properly. Inspect the centrifuge for any visible signs of shipping damage. Shipping damage is the responsibility of the transportation carrier. Any claims for damage must be filed within 48 hours with the carrier that delivered the centrifuge. The accessories supplied with the centrifuge should be kept with the instruction manual near the centrifuge's place of installation.

2.2 Required space

The centrifuge should be installed on a rigid, even surface such as a stable laboratory bench, countertop, etc. To guarantee sufficient ventilation, ensure that the centrifuge has at least 15cm (6 inches) of free space on all sides, including the rear. The centrifuge should not be located in areas subject to excessive heat such as in direct sunlight or near radiators or the exhaust of a compressor, as a buildup of heat may occur within the chamber.

2.3 Installing the Centrifuge

Before operating the centrifuge, check that the power source (electrical outlet on the wall) corresponds to that on the manufacturer's rating label, then connect the power cord to the centrifuge and the power source.

3. Installation of rotors and rotor maintenance

3.1 Rotors and accessories

The following accessories are included or available for Prism Microcentrifuge:

Strip Spin Adapter

Order no. C2400-SS

Tubes accepted 0.2ml tubes or 8 x 0.2ml strips

Max Speed 15,000 rpm

Range Centrifuge radius 4.32cm to 5.33cm

Range RCF (g value) 10,874 x g to 13,405 x g

Adapter for 0.5ml tubes (pk./6)

Order no. C1205

Tube measurement 8 x 30mm

Max. speed 15,000rpm

Centrifuging radius 7.53cm

RCF (g-value) 18,942 x g

Adapter for 0.4ml tubes (pk./6)

Order no. C1206

Tube measurement 6 x 47mm

Max. speed 15,000rpm

Centrifuging radius 8.4cm

RCF (g-value) 21,200 x g

Adapter for 0.2ml tubes (pk./6)

Order no. C1222

Tube measurement 6 x 21mm

Max. speed 15,000rpm

Centrifuging radius 7.03cm

RCF (g-value) 17,684 x g

3.2 Rotor maintenance

The rotor should be cleaned thoroughly after each use. Thorough cleaning must be performed when spinning samples containing phenol or phenol chloroform.

Periodically inspect the rotor for dents, dings, scratches, discoloration and cracks. If any damage to the rotor is found, discontinue use of the rotor immediately and replace.

3.3 Removing and installing the angle rotor

The Prism Microcentrifuge comes complete with a standard 24 place rotor installed. To remove the rotor for cleaning, remove the rotor securing screw from the motor shaft by turning the screw counterclockwise, using the rotor wrench. Lift the rotor directly upward in a straight vertical motion.



Figure 1. Loading the rotor to achieve balance

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.

3.4 Loading the rotor

Tubes to be loaded should be filled equally by eye. The difference in the weight between the tubes should not exceed 0.1 gram. Tubes should always be loaded so that there is equal spacing between all tubes. One or two additional loaded tubes may need to be added to achieve this. Refer to Figure 1. to see one typical balancing scheme.

3.5 Overloading rotors

The maximum load of the rotor and maximum speed has been established by the manufacturer. Do not attempt to exceed these values. The maximum speed of the rotor has been established for liquids having a homogeneous density of 1.2g/ml or less. In order to centrifuge liquids with a higher density it is necessary to reduce the speed.

Failure to reduce the speed may result in damage to the rotor and centrifuge. The revised maximum speed can be calculated with the following formula:

$$\text{Reduced speed (n}_{\text{red}}) = \sqrt{\frac{1.2}{\text{Higher Density Value}}} \times \text{max speed (n}_{\text{max}})$$

Example:

Where the density of the liquid is 1.7, the new maximum speed would be calculated as follows:

$$n_{\text{red}} = \sqrt{\frac{1.2}{1.7}} \times 15,000 = 12,602 \text{ rpm}$$

If in doubt concerning maximum speeds, please contact the manufacturer for assistance.

4. Operation

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.

4.1 Attaching rotor lid

After the rotor has been properly secured and loaded, attach the rotor lid to the rotor. Always use the rotor lid for safety and to allow the rotor to reach proper speed. Make sure that the rotor lid snaps securely into place, by pressing down on center catch.

4.2 Closing the lid

Close the centrifuge lid. The Prism Microcentrifuge has a lid lock that activates only when a run is started.

4.3 Lid release

The lid will remain locked during a centrifuge run. Once the run has been completed and the rotor has come to a stop, a beep will indicate the end of a run, and the lid will unlock automatically.

WARNING: Do not attempt to open the lid of any centrifuge until the rotor has come to a complete stop.

In the event of a power failure or malfunction, it may be necessary to open the lid manually.

1. Disconnect the power cord from the wall socket.
2. Remove the plastic plug, located on the left side of the unit.
3. Pull the wire (attached to the plug) to open the lid lock manually.

4.4 Lid lock

The centrifuge can be started only with the lid securely closed. When a run is started, the lid lock automatically activates. Do not attempt to open the lid during a centrifuge run. At the end of the run, the lid will automatically unlock. Never attempt to override the lid lock mechanism. Doing so is dangerous and could damage the centrifuge.

4.5 Speed selection (see Figure 2.)

The speed (rpm or g-force) can be selected from 500 to 15,000 rpm in 100 rpm increments or from 100 to 21,200 x g with the control knob. The speed is selected by pressing the RPM or RCF button. The speed signal will begin to blink. Then, turn the control knob to increase or decrease the value.

4.6 Selection of operating time, momentary operation, Start/Stop

Operating time can be selected from 0.5 min to 99 min by pressing the TIME button and adjusting with the control knob. The time can be set in 0.5 minute increments from 0 to 10 minutes and in 1 minute increments from 10 to 99 minutes. After 99 minutes, the display shows "--" which indicates continuous run. In this mode, the centrifuge will run until manually stopped. To start a run, press the control knob. When the preselected time expires, the centrifuge will stop automatically. To stop the centrifuge prior to the expiration of set time, press the control knob. The centrifuge may be operated for a short run by pressing and holding the control knob. The centrifuge will continue to run as long as the control knob is depressed and the time, in seconds will count up on the time display.

Figure 2. Prism Microcentrifuge control panel layout



5. Service and Maintenance

5.2 Centrifuge service

The brushless motor in the Prism requires no routine maintenance. Any required service should be performed by authorized, qualified personnel only. Repairs performed by unauthorized personnel may void the warranty.

5.2 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)

5.3 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.

5.4 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.

5.5 Replacing fuses

Check the fuse when it is recommended in the Troubleshooting Guide located in this manual. The fuse holder is located in the power inlet on the rear 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 outermost chamber of the fuse drawer. Replace only with a fuse of exactly the same value as the original. (Fuse type may be found in the Technical data section of this manual)

6. Troubleshooting Guide

Please refer to this guide before calling for service.

Centrifuge will not start

Possible reason:	No power supply
Solution:	Check that power is being supplied to the outlet Check that the power cord is plugged into both the wall outlet and the back of the centrifuge Check that power cord is not damaged
Possible reason:	Blown fuse
Solution:	Check fuse and replace if necessary

Lid lock will not release

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

Centrifuge cannot be started, although power is on

Possible reason: Lid not closed correctly
Solution: Close lid correctly

Possible reason: No speed or time has been selected
Solution: Set speed and/or time

bAL: Error Message Indicates imbalance

Possible reason: Tubes not inserted symmetrically in rotor holes
Solution: Load tubes symmetrically (see Section 3.4 on Loading the rotor)

Possible reason: Sample liquid in tubes not balanced
Solution: Make sure the same volume of liquid is in each tube

Possible reason: Defective or improperly adjusted balance sensor
Solution: Call service

Lid: (Error message) Lid not closed

Possible reason: Lid not closed completely
Solution: Close lid

Possible reason: Lid lock or sensor defective
Solution: Call service

Other Error Messages Er on Display

Solution: Press time or speed knob to clear error
Call service

7. Where to call

Should you have any questions about the Prism or its accessories, please call your local Labnet distributor or Labnet's USA Customer Service Department at 732-417-0700. Customer Service is staffed from 8:00am to 5:30pm, EST, Monday through Friday. Our 24 hour fax number is 732-417-1750. Inquires may also be sent via our electronic mailbox at labnetinfo@corning.com.

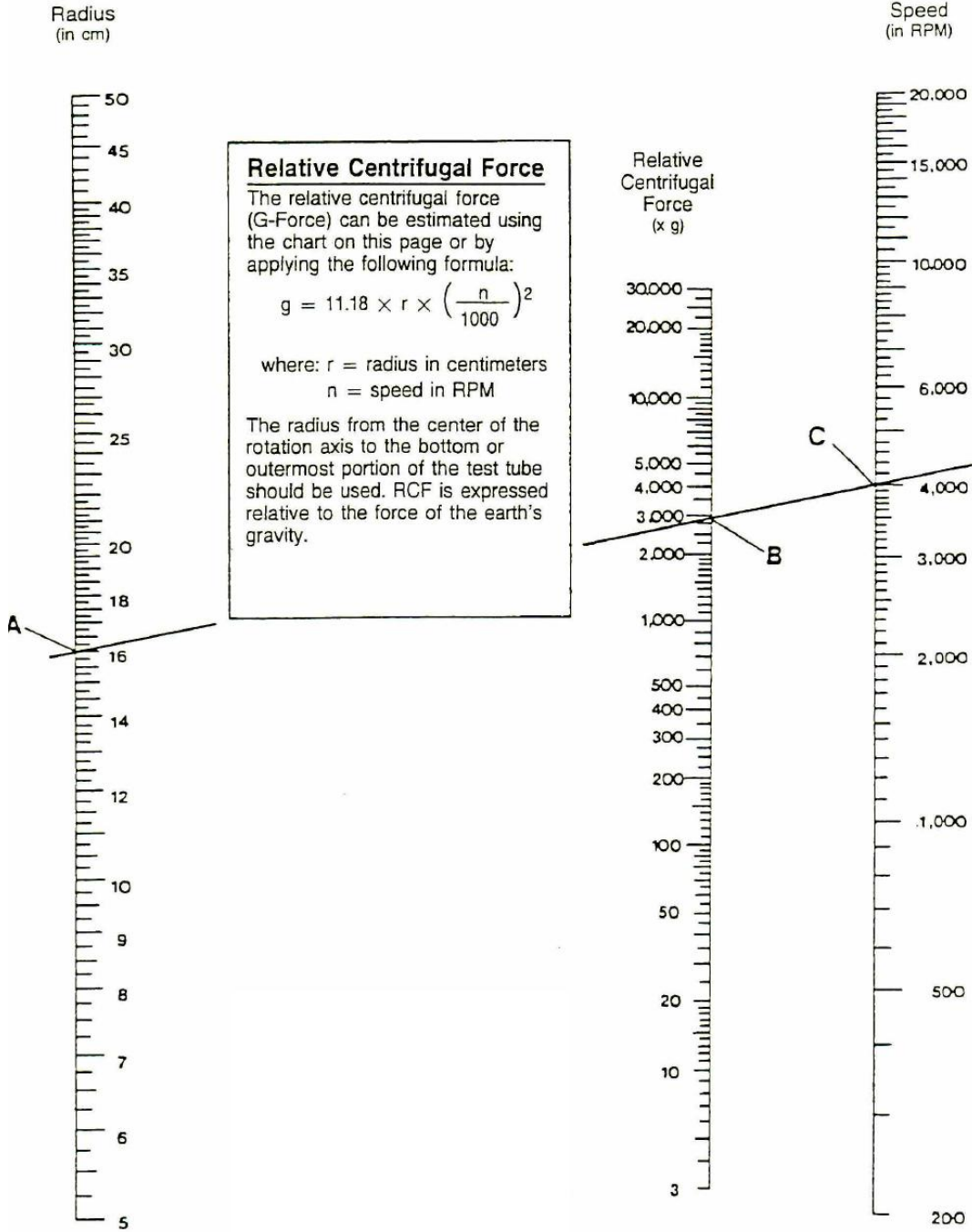
Should your Prism require service, please call Labnet's Technical Services Department at 721-417-0700. Our Service Department is staffed 8:30am to 5:00pm, EST, Monday through Friday. Our 24 hour fax number is 732-417-1750. Electronic mail may be sent to labnetinfo@corning.com

Please have the unit's serial number (located on the back panel of the instrument) available when calling. Should an item require return to Labnet for service, a repair authorization (RA) number must first be received from Labnet and a decontamination form completed by the user. Items sent without an RA number or decontamination form will not be accepted.

8. Determination of g-values

The centrifuging radius of the 1.5/2.0ml rotor is 8.23cm. The Prism Microcentrifuge has an automatic g-force conversion program, so g- values are automatically calculated and can be displayed on the control panel, for this centrifuging radius. If adapters or smaller tubes are used, the centrifuging radius changes as does the g force. The chart on the next page can be used to manually determine g-values for any centrifuging radius.

RELATIVE CENTRIFUGAL FORCE



EQUIPMENT DISPOSAL



According to Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE), Labnet Prism Microcentrifuge is marked with the crossed-out wheeled bin and must not be disposed of with domestic waste.

Consequently, the buyer shall follow the instructions for reuse and recycling of waste electronic and electrical equipment (WEEE) provided with the products and available at the following link: www.corning.com/weee

LIMITED WARRANTY

Labnet International Inc. warrants that this product will be free from defects in material and workmanship for a period of one (1) year from date of purchase. This warranty is valid only if the product is used for its intended purpose and within the guidelines specified in the supplied instruction manual.

Should this product require service, contact Labnet's Service department at 732-417-0700 to receive a return authorization number and shipping instructions. Products received without proper authorization will be returned. All items returned for service should be sent postage prepaid in the original packaging or other suitable carton, padded to avoid damage. Labnet International Inc. will not be responsible for damage incurred by improper packaging. Labnet may elect for onsite service for larger equipment.

This warranty does not cover damage caused by accident, neglect, misuse, improper service, natural forces or other causes not arising from defects in original material or workmanship. This warranty does not cover motor brushes, fuses, light bulbs, batteries or damage to paint or finish. Claims for transit damage should be filed with the transportation carrier.

ALL WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION OF 12 MONTHS FROM THE ORIGINAL DATE OF PURCHASE.

LABNET'S SOLE OBLIGATION UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT, AT LABNET INTERNATIONAL INC.'S. DISCRETION, OF A DEFECTIVE PRODUCT. LABNET INTERNATIONAL, INC. IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGE, COMMERCIAL LOSS OR ANY OTHER DAMAGES RESULTING FROM THE USE OF THIS PRODUCT.

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No individual may accept for, or on behalf of Labnet International Inc., any other obligation of liability, or extend the period of this warranty.

***Please register your product online at:
www.labnetinternational.com***

Warranty/Disclaimer: Unless otherwise specified, all products are for research use only. Not intended for use in diagnostic or therapeutic procedures. Labnet International makes no claims regarding the performance of these products for clinical or diagnostic applications.



31 Mayfield Ave. Edison, NJ 08837
P: +732-417-0700 F: +732-417-1750
Toll Free: 888-522-6381
labnetinfo@corning.com
www.labnetinternational.com

9299840000