

LED Display. Instruction Manual & Details

Pro-Analytical, PrO-Hospital, PrO-PRP, PrO-Road,
PrO-ASTM BE & FSE models

PrO-Analytical



PrO-Hospital



PrO-PRP



PrO-Road



It is imperative to read the full manual before use. A full rotor manual is also supplied. Information is also available from our website.

Before setting up

- Check the Centrifuge and the Packaging for any shipping damage. Inform the shipping company and Centurion Scientific immediately
- Check the order for completeness, if not contact Centurion Scientific

Location

The Centrifuge should only be operated indoors.

The set up location must fulfil the following requirements

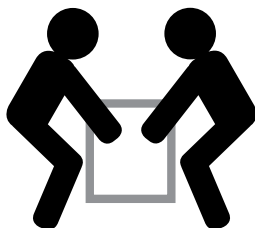
- A safety zone of at least 300cm must be maintained around the Centrifuge
- People and hazardous substances must be kept out of this zone during centrifugation

Warning

- The bench or supporting structure must be stable and free from resonance
- The Bench or supporting structure must be suitable for horizontal use of the centrifuge
- The Centrifuge should Not be exposed to heat or strong sunlight
- Ultra violet rays can damage the stability of plastics and coatings
- Do not subject the Polypropylene, Delrin rotors or accessories to direct sunlight
- The Zone location must be well ventilated at all times

Transporting the Centrifuge

- Always remove the Rotor before transportation
- Due to its weight the Centrifuge should be carried by several people
- Transport the Centrifuge upright and if possible in its packaging
- Always lift the centrifuge at both sides (see below). NOT front to rear.



Notice

- Store the original packaging, Keep this for future service to base , if required.

Alignment after moving

The Horizontal alignment of the Centrifuge must be checked if the unit has been moved. Further the Bench used must be suitable (see Transport and set up page)

Caution

If the Centrifuge is not level, Imbalances can occur and damage caused. Do not place objects under the feet to level, this is not safe or good practice.

Mains connection



- Make sure the Voltage and Frequency correspond to the rating plate on the rear
- Check if the power cable supplied complies with the safety standards of your country
- If so connect the cable to the rear socket
- Plug the other end to your power source (Grounded Electrical socket only)
- Turn on the unit with the switch marked 0/1

Storage

When removing the Centrifuge, rotors and accessories from use you must clean and if necessary decontaminate or disinfect all parts. Please contact us our Service department for assistance.

Store each in supplied separate cartons.

Avoid storing in direct sunlight and always in a dust free environment.

Be sure the centrifuge is vertical and on its feet

Shipping the Centrifuge and parts

- Always remove the rotor and its components
- The Centrifuge, rotor and accessories must be clean and decontaminated
- Certificate of Decontamination must be sent (Environmental & Health/Safety rules)
- Use the original packaging and pack safely with confidence.
If not, the liability of damage will be your responsibility.

Separate rotor manual supplied. Instructions must be followed



Above shows 12000 (Rpm see dot bottom right) i.e. 1200 x 10 and 30 minutes of time

To set speed in Rpm

Press up or down arrows below speed display.

To set time

Press up or down arrows below time display.

To set in Rcf (G)

Press Function button (keep held down) then press Lid open button.

NOTE the direction of blue dot in the speed display

Top left for RCF program, bottom right for Rpm.



Above shows Acceleration rate of 9, Deceleration rate of 9 and Memory number 1

To set: acceleration or deceleration rates

Press Function button (keep held down) then
Press Speed Down arrow for acceleration
Press Speed Up arrow for Deceleration (brake)
Both show 0-9 inclusive, 9 is the highest rate

To set: memory and store

(first set speed or rcf & time)
Press Function button (keep held down) then
Press Pulse button to select number 0-9 inclusive
Press Time down arrow to store

To recall memory

First recall memory number (see above)
Press Function button (keep held down) then
Press Time up arrow to recall memory

To use the centrifuge *Follow safety instructions on previous pages. Always load samples evenly.*

Load samples, Fit lid (if applicable) Set Speed or Rcf(G) then designated time.

Close the Centrifuge lid. Press down firmly on both left & right sides.

Press Start button (bottom left), the motor will now accelerate to the designated setting.

When time has counted down (time display right) the rotor will decelerate (brake).

According to the setting you have made (9 is fastest) the rotor will stop and OpEn will appear on the display.

Press Lid open button and retrieve your samples.

You can stop the run at any time by pressing the Start / Stop button.

To use Pulse (short run)

This method allows very short runs mainly for "Pelleting" purposes.

Set your desired speed or RCF (G) Time is not relevant.

Load your samples. Fit lid (if applicable).

Press Pulse button (bottom right) keep held down, you will see the Time display counting up in seconds.

As long as you keep the button held down time will increase. On releasing the button centrifuge will brake.

Press Lid open when OpEn appears on the display, and retrieve your samples.

Please make sure the lid is kept closed at all times, otherwise temperature control cannot be held. Allow at least 20 minutes for below ambient temperatures to be reached and stabilised. **NOTE** for above ambient temperatures please lower the temperature to 4 C first (to work the internal gases). Once this temperature has been reached, then raise 20-20-40 C as required. **Wipe the bowl regularly to remove moisture that can collect due to the dew point effect.**

Refrigerated Model Instructions



Above shows 4°C, 12000 (Rpm see dot bottom right) IE: 1200 x 10 and 30 minutes of time

To set temperature
Press up or down arrows below speed display.

To set speed in Rpm
Press up or down arrows below speed display.

To set time
Press up or down arrows below time display.

To set in Rcf (G)

Press Function button (keep held down) then press Lid open button.
NOTE the direction of blue dot in the speed display
Top left for RCF program, bottom right for Rpm.



Above shows Acceleration rate of 9, Deceleration rate of 9 and Memory number 1

To set:
acceleration or deceleration rates
Press Function button (keep held down) then
Press Speed Down arrow for acceleration
Press Speed Up arrow for Deceleration (brake)
Both show 0-9 inclusive, 9 is the highest rate

To set:
memory and store
(first set speed or rcf & time)
Press Function button (keep held down) then
Press Pulse button to select number 0-9 inclusive
Press Time down arrow to store

To recall memory

First recall memory number (see above)
Press Function button (keep held down) then
Press Time up arrow to recall memory

To use the centrifuge **Follow safety instructions on previous pages. Always load samples evenly.**

Load samples, Fit lid (if applicable) Set Speed or Rcf(G) then designated time.
Close the Centrifuge lid. Press down firmly on both left & right sides.
Press Start button (bottom left), the motor will now accelerate to the designated setting.
When time has counted down (time display right) the rotor will decelerate (brake).
According to the setting you have made (9 is fastest) the rotor will stop and OpEn will appear on the display.
Press Lid open button and retrieve your samples.
You can stop the run at any time by pressing the Start / Stop button.

To use Pulse (short run)

This method allows very short runs mainly for "Pelleting" purposes.
Set your desired speed or RCF (G) Time is not relevant.
Load your samples. Fit lid (if applicable).
Press Pulse button (bottom right) keep held down, you will see the Time display counting up in seconds.
As long as you keep the button held down time will increase. On releasing the button centrifuge will brake.
Press Lid open when OpEn appears on the display, and retrieve your samples.

Mechanical Emergency Door release

During a power failure, you will not be able to open the Centrifuge lid via the Display
A mechanical override is provided to allow sample recovery
However this is for Emergency use only
This should Not be used for normal use.

Warning

The rotor can still be spinning at a high speed, if touched it can cause serious injuries.
Always wait till the rotor has stopped.

Proceed as follows

- Make sure the Rotor has stopped (view via the port in the Lid)
 - Once stopped unplug the power line
 - Pull the Centrifuge slightly over the bench (as shown).
 - You will notice one or some models two plastic plugs
 - Pop open with a screwdriver (tool) and pull downwards The lid will pop open
- You can now retrieve your samples



After replace the Plastic plugs back into their original position.
Reconnect the centrifuge power line once the mains power has been restored.
Check all is working correctly by closing the lid, wait 5 seconds then press lid open.
If not working refit or Contact your Distributor

CODES SHOWN ON THE LED DISPLAY (ambient)



OPEN - You may now open the Lid.



LID - Wait 5 seconds press Lid open again.



LID - Close the lid.



ECHO - Check that your tubes are not too long and fouling the lid or anything else is stopping rotation of the rotor.



BAL - An imbalance has occurred Please check the tubes are diagonally opposite and of the same weight. Check if the tubes are broken if so use better quality, or if glass reduce the speed to the manufacturers recommended G force.

NOTE: If **druch** or **drLuE** (drive) show please Contact Service Department, or refer to technical manual.

Rotor recognition models only



roto
The sensor has found the speed to be incorrect to the rotors settings, it will have readjusted. Please recheck your speed and try again. If this continues contact the service department.



rrEc
A problem with the sensor or inverter has occurred please contact the service department.

Test **EST** Routine

(all C series LED models)

This allows you to turn on or off the buzzer and to check the sensors for, Tachometer, Rotor recognition, Lid open & Imbalance detector.



- See 23 Each go 0/1 as you turn rotor or operate Imbalance detector or shut lid.
 Centrifuge lid in open position, **Mains off at rear switch.**
 Press function (keep held down) whilst turning on at rear switch. When test shows release function button.
 Press time up arrow See numbers in time display go to18
 Buzzer off or on (0/1)18
 Set speed Rpm digits in 10 or 100 Rpm steps19
 E prom check Press Speed up arrowNumber not shown
 LED display check increment speed up arrowNumber not shown
 Rotor rec Tacho Lid open Imbalance24
 Turns rotor Turns rotor Close lid Push rotor to one side Display changes from 0 to 1
 Buzzer test press speed up arrowNumber not shown
 Watchdog test Press speed up arrow. **HELLO** (Hello) should display, then back to normal.

Next is **EEEE St**
BBBB BB

BuZt St
DoSt St

CODES SHOWN ON THE LED DISPLAY (refrigerated)



OPEN - You may now open the Lid.



LID - Wait 5 seconds press Lid open again.



LID? - Close the lid.



TACH? - Check that your tubes are not too long and fouling the lid or anything else is stopping rotation of the rotor.



BAL? - An imbalance has occurred Please check the tubes are diagonally opposite and of the same weight. Check if the tubes are broken if so use better quality, or if glass reduce the speed to the manufacturers recommended G force.



50 - Temperature sensor has failed.

NOTE: if **drUCH** or **drLUE** (drive) show please Contact Service Department, or refer to technical manual.

Rotor recognition models only



rotor?
The sensor has found the speed to be incorrect to the rotors settings, it will have readjusted. Please recheck your speed and try again. If this continues contact the service department.



rrEc ?
A problem with the sensor or inverter has occurred please contact the service department.

Test **TEST** Routine

(LED models)

This allows you to turn on or off the buzzer and to check the sensors for, Tachometer, Rotor recognition, Lid open & Imbalance detector.



See 23 Each go 0/1 as you turn rotor or operate imbalance detector or shut lid.

Centrifuge lid in open position, **Mains off at rear switch.**

Press function (keep held down) whilst turning on at rear switch. When test shows release function button.

Press time up arrow See numbers in time display go to18

Buzzer off or on (0/1)18

Set speed Rpm digits in 10 or 100 Rpm steps19

E prom check Press Speed up arrowNumber not shown

LED display check increment speed up arrowNumber not shown

Rotor rec Tacho Lid open Imbalance24

Turn rotor Turn rotor Close lid Push rotor to one sideDisplay changes from 0 to 1

Buzzer test press speed up arrowNumber not shown

Watchdog test Press speed up arrow. **HELLO** (Hello) should display, then back to normal.

Next is **EEtE St**
8888 88

Bu2t St
0o9t St

Fault seen

tACHO Shown on the display

NOTE this does not necessarily mean a Tachometer or board fault.

First check that the sample tubes are too tall and preventing the rotor to move when the lid is shut

Check the rotor and motor for movement, they must rotate smoothly

Check through the opening in the base that no intrusions or dust are fouling the sensor.

bAL shown on the display

An imbalance has occurred

Check your sample tubes for equal weight and opposite positioning (see Rotor manual supplied)

Check your sample tubes for breakage or rupture and the bowl bottom for liquid

NOTE. Always weigh and balance to <2grams for best results and oppose each in the rotor.

Turn off the unit and back again AFTER 2 minutes.

If the fault bAL still shows the detector is damaged.

If none of the above Contact your Distributor

Speed will not go beyond 2000 Rpm.

- The Electronics have set the unit to SAFE Mode
- Check the "hall sensor" on top of the motor and its wires.
- Check connection to mother board on the underside of the motor.
- Remove the rotor. Check the magnets on the underside for fit and cleanliness

If none of the above Contact your Distributor

Noisy

Un balanced tubes or not opposing (see Rotor manual supplied).

Lid seal broken or not fitted correctly

Lid support is weak

Spring or gas strut failure. **Contact your Distributor**



EC Declaration of Conformity

Declares that product: PrO-ASTM, PrO-Analytical, Pro-Hospital, PrO-Road, PrO-PRP
Centrifuge Series
Product options: Rotor plus Accessories

This instrument is fully guaranteed against manufacturing defect for a period of three years from date of purchase.

Service and technical manual can be obtained via our website and address below.

Conform to the following Product Specifications:

IEC 1010-1, 1010-2 020, IEC 1010-2-0202 020, 7.2.101
EN 61010, EN 61010-1, 7.5 expelled parts, BS 5724, BS 7687:2.20
BS EN 61010-2-020 1195, 73/23/EEC Low voltage directive
EMC EU 89 336 (INCLUSIVE 93/68/EEC)

Supplementary Information CE Marking

The product herewith complies with the requirements of the following Directives and carries the CE mark accordingly.

The Low voltage Directive 73.23/EEC

The EMC Directive 89/336/EEC (inclusive 93/68/EEC)

This product was tested in a typical configuration with Centurion Scientific Ltd and other test House Facilities.

Quality Control. ISO 90001:2008

internal systems for testing sub assemblies (5) and final product.

IVD 98/79CE - European Directive.

Self certified group C.

IVD 9879EC

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all the applicable essential requirements of directives.

Certified by: K. Cooper QA Manager

Certificate of Origin

Centurion Scientific Ltd of The Old Stables, Church Farm,
Stoughton, Chichester, West Sussex, PO18 9JL,
UNITED KINGDOM, hereby confirm that all centrifuges and
accessories supplied by us are of UNITED KINGDOM origin.

Signed for and on behalf of Centurion Scientific Ltd
Granted 2016



Company Representative



CENTURION
SCIENTIFIC LIMITED



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