

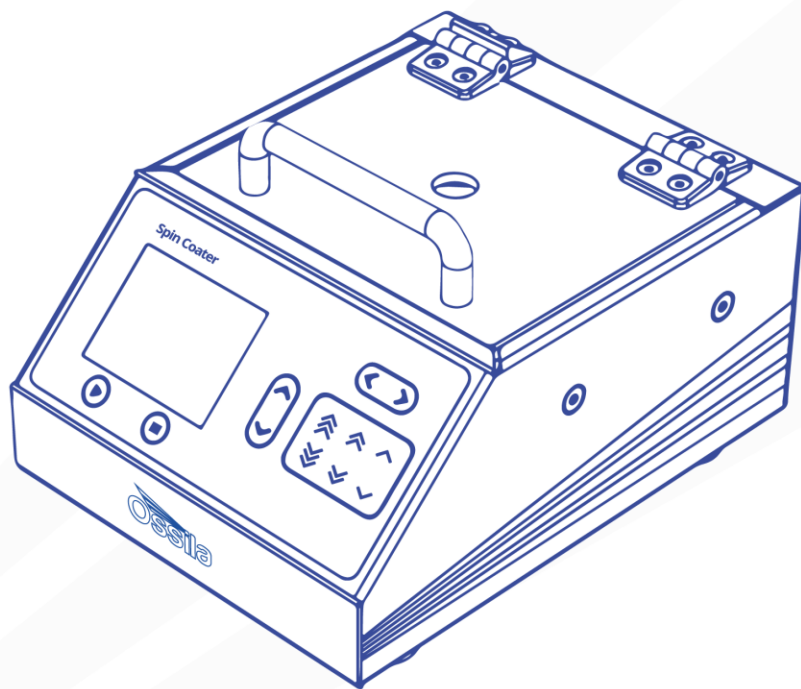
SPIN COATER USER MANUAL

Manual Version: 2.0.A

Product code: L2001B2

Product Version: 2.0

Software Version: 2.0



Contents

Contents	2
1. Overview	3
2. EU Declaration of Conformity (DoC)	5
3. Safety	8
3.1 Warning.....	8
3.2 Use of Equipment	8
3.3 Hazard Icons	8
3.4 General Hazards.....	9
3.5 Servicing.....	10
3.6 Health and Safety – Installation	10
3.7 Health and Safety – Operation.....	10
3.8 Health and Safety – Servicing.....	11
4. Unpacking	12
4.1 Packing List.....	12
4.2 Damage Inspection.....	12
5. Specifications	13
6. System Components.....	14
7. Installation.....	15
8. Operation	17
8.1 Overview	17
8.2 User Interface	18
8.3 Programming and Usage	19
9. Maintenance.....	26
9.1 Cleaning	26
9.2 Repair and Service	26
9.3 Storage Conditions	26
10. Troubleshooting.....	27
11. Revision History	28

1. Overview

The vacuum-free Ossila Spin Coater is part of the Institute of Physics award-winning Solar Cell Prototyping Platform*. Unlike most other models in the market, it does not need a vacuum pump or nitrogen line – therefore requiring less servicing and enabling you to produce high-quality coatings without the problems of substrate warping. Compact and portable, the Spin Coater will help you optimise space in the glovebox or on the workbench without compromising on functionality – making it the ideal solution for busy labs with limited space.

Substrates are held firmly on the chuck without the need for a vacuum. This produces a better uniform thin-film coating across the substrate. The Ossila Spin Coater is operated via a built-in interactive user interface.

During a cycle, the product recipe number, spinning speed acceleration, and remaining time are displayed on the full colour display screen – so you do not need an external PC connection.

*The Ossila Solar Cell Prototyping Platform is a complementary collection of substrates, materials, and equipment as part of a high-performance standard photovoltaic reference architecture. This platform enables researchers to produce high-quality, fully functional solar cells which can be used as a reliable baseline.

For more information: ossila.com/pages/solar-cell-prototyping-platform



2. EU Declaration of Conformity (DoC)

We

Company Name: Ossila BV

Postal Address: Biopartner 3 building, Galileiweg 8

Postcode: 2333 BD Leiden

Country: The Netherlands

Telephone number: +31 (0)71 3322992

Email Address: info@ossila.com

declare that the DoC is issued under our sole responsibility and belongs to the following product:

Product: Spin Coater Advanced (L2001B2)

Serial number: L2001B2-xxxx

Object of declaration:

Spin Coater Advanced (L2001B2)

The object of declaration described above is in conformity with the relevant Union harmonisation legislation:

Machinery Directive 2006/42/EC

EMC Directive 2014/30/EU

RoHS Directive 2011/65/EU

The following harmonised standards and technical specifications have been applied:

BS EN ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction.

Signed:



Name: Dr James Kingsley

Place: Leiden

Date: 03/11/2025

Декларация за съответствие на ЕС

Производител: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Декларира с цялата си отговорност, че посоченото оборудване съответства на приложимото законодателство на ЕС за хармонизиране, посочено на предходната(-ите) страница(-и) на настоящия документ.

[Čeština] Prohlášení o shodě EU

Výrobce: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Prohlašujeme na vlastní odpovědnost, že uvedené zařízení je v souladu s příslušnými harmonizačními předpisy EU uvedenými na předchozích stranách tohoto dokumentu.

[Dansk] EU-overensstemme Iseserklæring

Producent: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Erklærer herved, at vi alene er ansvarlige for, at det nævnte udstyr er i overensstemmelse med den relevante EU-harmoniseringslovgivning, der er anført på den/de foregående side(r) i dette dokument.

[Deutsch] EU-Konformitätserklärung

Hersteller: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Wir erklären in alleiniger Verantwortung, dass das aufgeführte Gerät konform mit der relevanten EU-Harmonisierungsgesetzgebung auf den vorangegangenen Seiten dieses Dokuments ist.

[Eesti keel] ELi vastavusavaldus

Tootja: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Kinnitame oma ainuvastutust, et loetletud seadmed on kooskõlas antud dokumendi eelmisel leheküljel / eelmistel lehekülgedel ära toodud asjaomaste ELi ühtlustamise õigusaktidega.

[Ελληνικά] Δήλωση πιστότητας ΕΕ

Κατασκευαστής: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Δηλώνουμε υπεύθυνα ότι ο αναφερόμενος εξοπλισμός συμμορφώνεται με τη σχετική νομοθεσία εναρμόνισης της ΕΕ που υπάρχει στις προηγούμενες σελίδες του παρόντος εγγράφου.

[Español] Declaración de conformidad UE

Fabricante: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Declaramos bajo nuestra única responsabilidad que el siguiente producto se ajusta a la pertinente legislación de armonización de la UE enumerada en las páginas anteriores de este documento.

[Français] Déclaration de conformité UE

Fabricant: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Déclarons sous notre seule responsabilité que le matériel mentionné est conforme à la législation en vigueur de l'UE présentée sur la/les page(s) précédente(s) de ce document.

[Hrvatski] E.U izjava o sukladnosti

Proizvođač: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Izjavljujemo na vlastitu odgovornost da je navedena oprema sukladna s mjerodavnim zakonodavstvom EU-a o usklađivanju koje je navedeno na prethodnoj(nim) stranici(ama) ovoga dokumenta.

[Italiano] Dichiarazione di conformità UE

Produttore: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Si dichiara sotto la propria personale responsabilità che l'apparecchiatura in elenco è conforme alla normativa di armonizzazione UE rilevante indicata nelle pagine precedenti del presente documento.

[Latviešu] ES atbilstības deklarācija

Ražotājs: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Ar pilnu atbildību paziņojam, ka uzskaitītais aprīkojums atbilst attiecīgajiem ES saskaņošanas tiesību aktiem, kas minēti iepriekšējās šī dokumenta lapās.

[Lietuvių k.] ES atitikties deklaracija

Gamintojas: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL,

atsakingai pareiškia, kad išvardinta įranga atitinka aktualius ES harmonizavimo teisės aktus, nurodytus ankstesniuose šio dokumento

[Magyar] EU-s megfelelőségi nyilatkozat

Gyártó: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Kizárólagos felelősségünk mellett kijelentjük, hogy a felsorolt eszköz megfelel az ezen dokumentum előző oldalán/oldalain található EU-s összehangolt jogszabályok vonatkozó rendelkezéseinek.

[Nederlands] EU-Conformiteitsverklaring

Fabrikant: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Verklaart onder onze uitsluitende verantwoordelijkheid dat de vermelde apparatuur in overeenstemming is met de relevante harmonisatiewetgeving van de EU op de vorige pagina(s) van dit document.

[Norsk] EU-samsvarserklæring

Produsent: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Erklærer under vårt eneansvar at utstyret oppført er i overholdelse med relevant EU-harmoniseringslovverk som står på de(n) forrige siden(e) i dette dokumentet.

[Polski] Deklaracja zgodności Unii Europejskiej

Producent: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.

Oświadczamy na własną odpowiedzialność, że podane urządzenie jest zgodne ze stosownymi przepisami harmonizacyjnymi Unii Europejskiej, które przedstawiono na poprzednich stronach niniejszego dokumentu.

[Por tuguês] Declaração de Conformidade UE

Fabricante: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.
Declara sob sua exclusiva responsabilidade que o equipamento indicado está em conformidade com a legislação de harmonização relevante da UE mencionada na(s) página(s) anterior(es) deste documento.

[Română] Declarație de conformitate UE

Producător: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.
Declară pe proprie răspundere că echipamentul prezentat este în conformitate cu prevederile legislației UE de armonizare aplicabile prezentate la pagina/paginile anterioare a/ale acestui document.

[Slovensky] Vyhlásenie o zhode pre EÚ

Výrobca: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.
Na vlastnú zodpovednosť prehlasuje, že uvedené zariadenie je v súlade s príslušnými právnymi predpismi EÚ o harmonizácii uvedenými na predchádzajúcich stranách tohto dokumentu.

[Slovenščina] Izjava EU o skladnosti

Proizvajalec: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.
s polno odgovornostjo izjavlja, da je navedena oprema skladna z veljavno uskladitveno zakonodajo EU, navedeno na prejšnji strani/prejšnjih straneh tega dokumenta.

[Suomi] EU-vaatimusten mukaisuusvakuutus

Valmistaja: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.
Vakuutamme täten olevamme yksin vastuussa siitä, että tässä asiakirjassa luetellut laitteet ovat tämän asiakirjan sivuilla edellisillä sivuilla kuvattujen olennaisten yhdenmukaistamista koskevien EU-säädösten vaatimusten mukaisia.

[Svenska] EU-försäkran om överensstämmelse

Tillverkare: Ossila BV, Biopartner 3 building, Galileiweg 8, 2333 BD Leiden, NL.
Vi intygar härmed att den utrustning som förtecknas överensstämmer med relevanta förordningar gällande EU-harmonisering som finns på föregående sidor i detta dokument.

3. Safety

3.1 Warning

- Devices with applied bias or current should NOT be left unattended, as a power failure may result in board damage or device damage (and potentially hazardous situations).
- Only use the unit with the supplied 24 VDC power adapter.
- Opening the lid will cause the rotating chuck to stop. However, due to inertia, it can take a few seconds for the chuck to come to a complete stop.
- Ensure the substrate is placed in an adequately sized chuck recess, as it holds it in place and stops it flying out.
- The unit should be operated under a working exhaust hood when used with flammable or toxic substances.

3.2 Use of Equipment

This Spin Coater is designed to be used as instructed, and in the following environmental conditions:

- Indoors in a laboratory environment (pollution degree 2)
- Altitudes up to 2000 m
- Temperatures of 5°C to 40°C; maximum relative humidity of 80% up to 31°C.

The Spin Coater is supplied with a power adapter and a power cord for the country of purchase (in accordance with European Commission regulations and British Standards). Use of any other electrical power cables or adaptors is not recommended.

3.3 Hazard Icons

The following symbols can be found at various points throughout this manual. Note and read each warning before attempting any associated operations associated with it:

Table 3.1 Hazard warning labels used in this manual.

Symbol	Associated Hazard
	General warning or caution, which accompanying text will explain
	Electrical shock
	Explosion
	Inhalation

3.4 General Hazards

Before installing or operating the Spin Coater, there are several health and safety precautions which must be followed and executed to ensure safe installation and operation.

WARNING: Improper handling when operating or servicing this equipment can result in serious injury or death. Read this manual before operating or servicing this equipment.



- i. **DANGER:** DO NOT use the Spin Coater in the presence of an explosive atmosphere.



- ii. **WARNING:** Emergency Power Disconnect options: Use the power cord as a disconnect method. Ensure that the power outlet for this cord is easily accessible by the user.



- iii. **CAUTION:** Opening the lid will cause the rotating chuck to stop. However, due to inertia it will take a few seconds for the rotating chuck to come to a complete stop at the highest speeds.



- iv. CAUTION: Ensure the substrate is placed into a chuck with an adequate-sized recess as it holds it in place and stops it flying around the bowl or even out of the bowl if the lid was opened at the highest speed (see caution III).



- v. CAUTION: Use under an exhaust hood when used with flammable or harmful solvents.

3.5 Servicing

If servicing is required, please return the unit to Ossila Ltd. The warranty will be invalidated if:

- Modification or service has taken place by anyone other than an Ossila engineer.
- The unit has been subjected to chemical damage through improper use.
- The unit has been operated outside the usage parameters stated in the user documentation associated with the unit.
- The unit has been rendered inoperable through accident, misuse, contamination, improper maintenance, modification, or other external causes.

3.6 Health and Safety – Installation



- i. Place the machine on a solid, level surface, free from vibration and temperature extremes. For optimum performance, make sure that the chuck is also level.
- ii. Refer to the specifications section or to the label on the power adapter for electrical requirements.
- iii. The machine is not to be used in a hazardous atmosphere.

3.7 Health and Safety – Operation



- i. CAUTION: The unit should be operated under an exhaust hood when flammable or harmful solvents are being used.



- ii. CAUTION: Opening the lid will cause the rotating chuck to stop. However, due to inertia, it will take a few seconds for the rotating chuck to come to a complete stop at the highest speeds. There is a risk of substances flying out of the bowl.

3.8 Health and Safety – Servicing



Servicing should only be performed by an Ossila engineer. Any modification or alteration may damage the equipment, cause injury, or death. It will also void your equipment's warranty.

4. Unpacking

4.1 Packing List

The items included with the Spin Coater are:

- The Spin Coater unit.
- Power adapter with a power cord (specific for country of operating).
- Chuck (as specified by the customer).

4.2 Damage Inspection

Examine the components for any evidence of shipping damage. If damage has occurred, please contact Ossila directly for further action.

5. Specifications

The Spin Coater specifications are shown in Table 5.1.

Table 5.1. Spin Coater specifications.

Features	Specifications
Users	10 Users
Programs	15 programs with up to 50 steps each
Speed stability	<0.25%
Minimum Speed	500 RPM
Maximum Speed	10,000 RPM
Speed Increment	10 RPM
Minimum Acceleration / Deceleration	10 RPM/s
Maximum Acceleration	4000 RPM/s*
Maximum Deceleration	700 RPM/s
Acceleration Increment	10 RPM/s
Spin time	1 s to 3,600 s
Power supply	24 VDC / 2A
Interlock	Software/hardware interlock
Case dimensions	Width: 170 mm Height: 140 mm Depth: 225 mm
Materials	Central PTFE unit and chuck, steel case, PET display and keypad, and tempered glass lid
Fuses	1 A slow blow
Weight	3.7 kg

*A minimum time for acceleration of 1s is required so a cap in the maximum acceleration may occur for small changes in speed between steps.

6. System Components

The Ossila Spin Coater comprises three items: the spin coater unit and power adapter (Figure 6.1), and spin coater chuck (Figure 6.2).

The Spin Coater is powered from a 24VDC mains power adapter. The power supply adapter is supplied with a power plug that is suitable for the country of purchase.

The Spin Coater chuck recess size is specified by the customer. The chucks are designed with close tolerances and provide a flat, rigid surface for mounting substrates of different sizes, weights and shapes. Proper chuck selection should be based on substrate size. The chuck has a push-fit connection to the motor coupling in the bowl of the Spin Coater and is easily removable for cleaning or interchanging with other chucks. For cleaning, see Section 9.1.

Figure 6.1. The Ossila Spin Coater and VDC Power Adapter

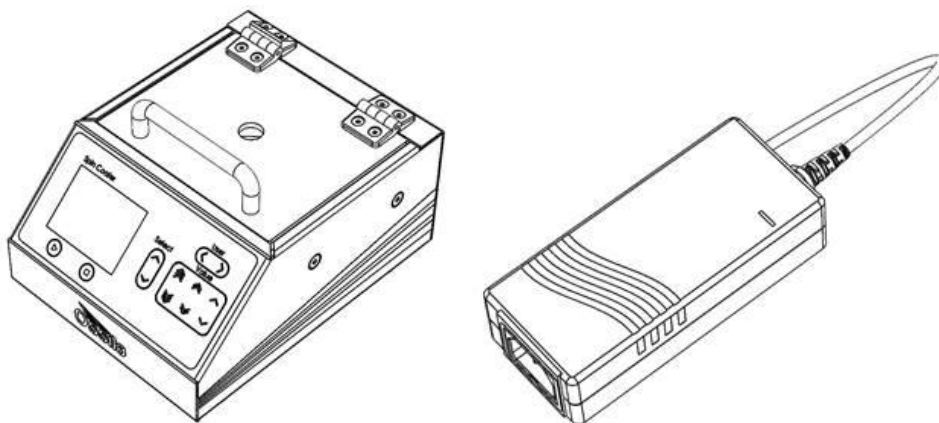
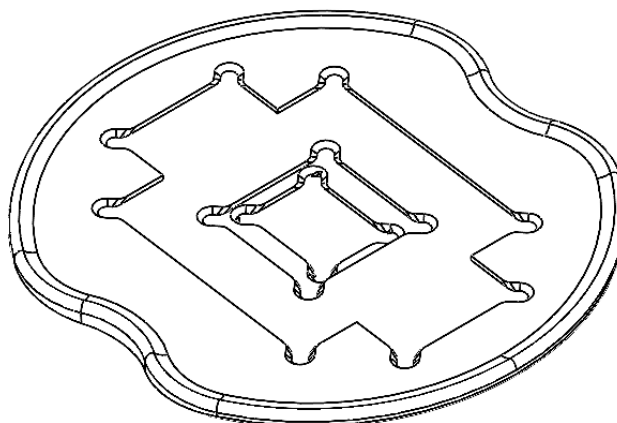


Figure 6.2. The Ossila Spin Coater chuck.



7. Installation

The process for installing the Spin Coater and chuck is as follows:

1. Place the unit on a solid, level surface. Ensure the area is free from vibrations, temperature extremes
2. Before plugging in the spin coater, ensure the power switch on the unit is switched to the '0' position (off).
3. Connect the power adapter to the power jack on the back panel of the Spin Coater unit (see Figure 7.1).
4. Refer to the label on the power adapter for electrical requirements.
5. Switch the Spin Coater power switch to the 'I' position to turn the unit on.

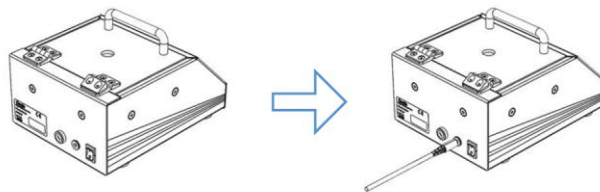
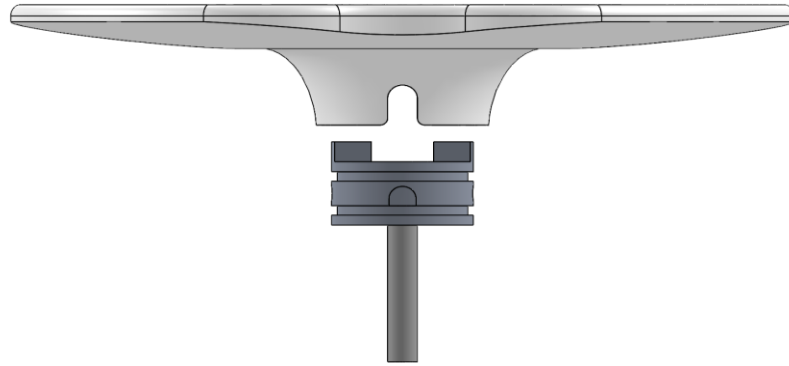


Figure 7.1. Connecting the power adapter to the power jack on the back panel of the unit.

6. Align the chuck carefully with the coupling by ensuring the two small indents on the chuck match up with the corresponding notches on the coupling (refer to Figure 7.2).

7. Avoid pushing down too hard or forcing the chuck into place, as this can cause damage to the motor. Ensure the chuck sits securely and evenly within the coupling before proceeding.

Figure 7.2. Connecting the chuck to the coupling of the spin coater.

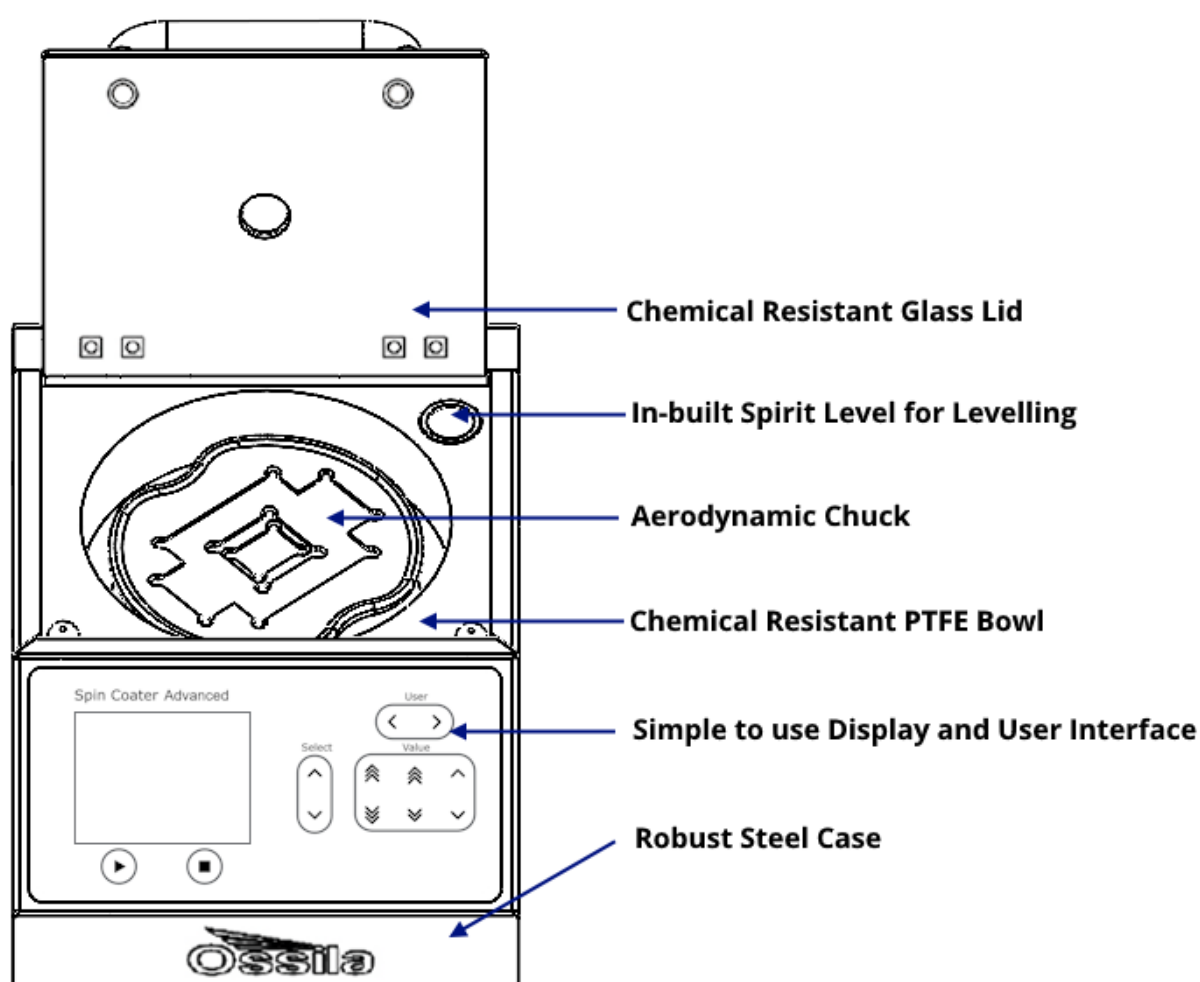


8. Operation

8.1 Overview

A top-down view of the Spin Coater is shown in Figure 8.1, with all the relevant components highlighted.

Figure 8.1. Spin Coater top-down image.



8.2 User Interface

Figure 8.2 shows the front panel of the spin coater, with a description of the functionality of each button.

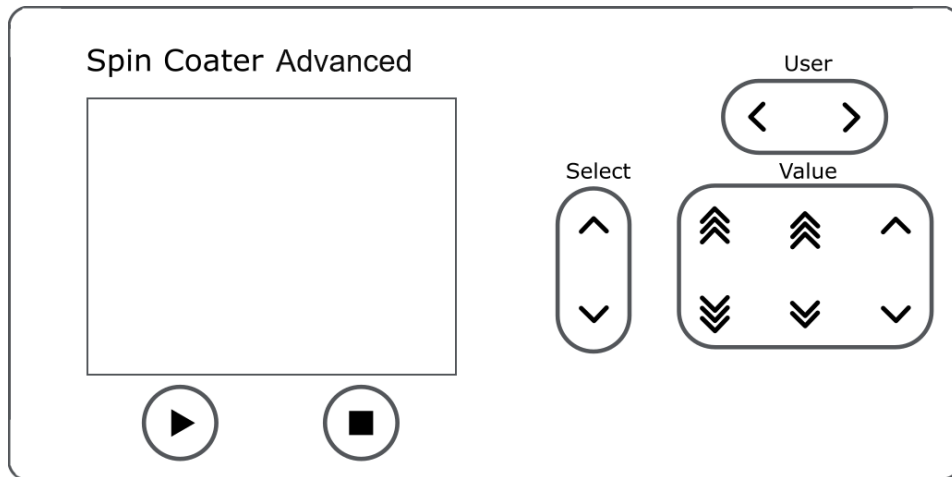


Figure 8.2. Spin Coater screen and keypad.



The start button is used to initiate a programmed sequence. While a program is running, the display will show the message "RUNNING" with the current speed and elapsed time. The "RUNNING" message will disappear once the program is finished.



The stop button is used to terminate the running program. It will reset to the first step of a given program when pressed.



These buttons are used to navigate between different user profiles.



These buttons are used to navigate between the changeable parameters within a program. While navigating, the cursor icon will indicate which parameter is selected. These buttons are used to navigate between the changeable parameters within a program. While navigating, the cursor icon will indicate which parameter is selected.

These buttons are used to change the profile values where the cursor is located and are divided into three columns:



Small increase/decrease (by 1 s/10 rpm/10 rpm.s⁻¹)



Medium increase/decrease (by 10 s/100 rpm/100 rpm.s⁻¹)



Large increase/decrease (by 100 s/1000 rpm/500 rpm.s⁻¹)

8.3 Programming and Usage

The Ossila Spin Coater has three pre-set experimental programs to get you started.

Table 8.1. Pre-set programs

User	Program	Step	Speed (rpm)	Acceleration (rpm.s ⁻¹)	Time (s)
01	01	1	1000	1000	20
		2	2000	1000	20
		3	3000	1000	20
		4	4000	1000	20
		5	5000	1000	20
15	01	1	500	100	10
		2	1000	100	10
		3	1500	100	10
		4	2000	100	10
		5	2500	100	10
15	02	1	1000	200	20
		2	1500	200	20
		3	2000	200	20
		4	2500	200	20
		5	3000	200	20

(I) Selecting a User Profile ("User")

1. To select the user profile of your choice, press either the left or right "User" buttons.



(II) Selecting a Program

2. Each user profile can store up to 10 programs. To choose between program numbers, navigate to the "Program" line and press the up  or down  buttons.
3. To edit the program, you can alter the number of steps in a program by using the following buttons  .



4. Navigate to the "Num of Steps" line, the total number of steps can be increased by using the following keys:  or .

Program 02	User: 01
▶ Num of Steps : 03	
Step : 01 of 03	
Speed : 00000 RPM	
Time : 0000 sec	
Accel : 0000 RPM/s	
READY	

5. Navigate to the "Step" line by using the "Select" keys to choose which step number is to be edited. The step number can be selected by using the following keys:  or .

Program 02	User: 01
Num of Steps : 03	
▶ Step : 02 of 03	
Speed : 00000 RPM	
Time : 0000 sec	
Accel : 0000 RPM/s	
READY	

6. Navigate to the "Speed" line to change the speed of the current step. Use the "Value" buttons to increase or decrease the value.

Program 02	User: 01
Num of Steps : 03	
Step : 02 of 03	
▶	Speed : 03210 RPM
	Time : 0000 sec
	Accel : 0000 RPM/s
READY	

7. Navigate to the "Time" line to specify the time duration for the current step. Use the "Value" buttons to increase or decrease the value.

Program 02	User: 01
Num of Steps : 03	
Step : 02 of 03	
	Speed : 03210 RPM
▶	Time : 0213 sec
	Accel : 0000 RPM/s
READY	

8. Navigate to the "Acceleration" line to specify the rate of acceleration for this step. Use the "Value" buttons to increase or decrease the value.

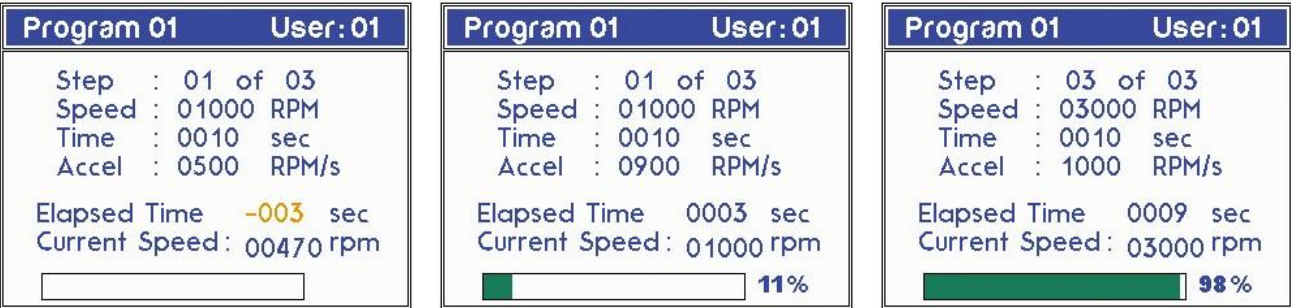
Program 02	User:01
Num of Steps : 03	
Step : 02 of 03	
Speed : 03210 RPM	
Time : 0213 sec	
▶	Accel : 0560 RPM/s
READY	

9. Acceleration and deceleration capping may occur in certain situations, a maximum deceleration of 700 rpm.s^{-1} and a minimum time for acceleration of one second is used. If capping occurs a warning mark will appear to indicate this.

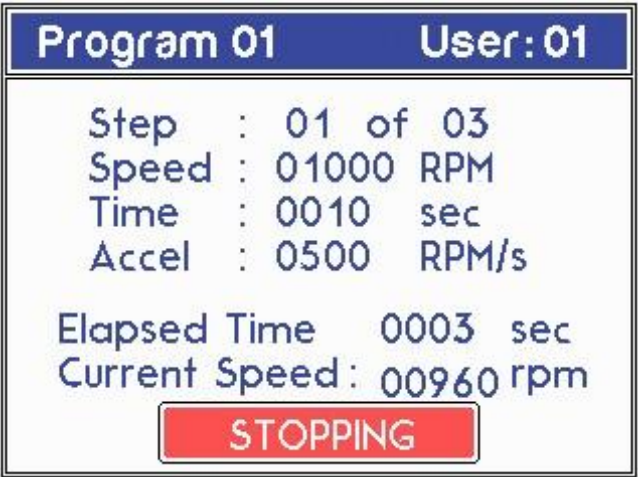
Program 01	User:01
Num of Steps : 03	
Step : 01 of 03	
Speed : 03000 RPM	
Time : 0020 sec	
▶	Accel : 3100 RPM/s !
READY	

(III) Start Program

10. Once everything is set and ready, press “Start” to run the program. At the bottom of the display, the current elapsed time and current speed will be shown. During acceleration a negative time will be displayed counting up to when the target speed is estimated to be reached. The elapsed time will then count down once the target speed is reached.



11. To abort the operation, press the “STOP” button.



12.If the lid is opened, a warning appears on the screen to notify the user. If the lid is opened while the motor is running, the system will force the motor to stop.



9. Maintenance

9.1 Cleaning

- To clean the lid, bowl, and chuck, use a solvent that is appropriate to dissolve the materials that have been spin coated.
- Use a soft cloth or towel in order to avoid damage to the polypropylene.
- Take care when cleaning around the keypad and display area, because organic solvents may damage/remove the label.

9.2 Repair and Service

The only user-serviceable part in this unit is the fuse (accessible externally). If the unit is faulty, please return it to Ossila. We will promptly quote to repair any faults that occur outside the 2-year warranty period. Parts subject to normal wear and tear (Spin Coater chucks) are not covered by the warranty.

9.3 Storage Conditions

The Spin Coater should be kept in dry conditions; away from direct sources of heat or sunlight, and in such a manner as to preserve the working life of the instrument.

10. Troubleshooting

Problem	Possible cause	Action
Spin Coater will not power up	a. The power supply may not be connected properly, or the switch is in the OFF position	a. Check the connection and make sure the power is turned ON
Cycle will not start	a. No recipe programmed b. Lid open/close not detected, or lid still open	a. Select/program a recipe b. Open and close the lid properly
Cycle starts, but immediately stops	a. Recipe problem	a. Review, edit and re-enter recipe as needed
Unit turns off when spinning	a. No chuck installed	a. Put a chuck onto the coupling and restart the system
Display time or RPM appears incorrect	a. Issue with the program	a. Turn OFF the Spin Coater for 5 seconds, and then restart
Coating issues	a. If the chuck is removed (for cleaning etc), it may not have been re-inserted properly causing an imbalance	a. Ensure the chuck is pushed in thoroughly so that the two metallic headers are inserted all the way and flush with the top of the chuck
	b. The Spin Coater is not level	b. Place the Spin Coater on a flat and sturdy surface and use the in-built spirit level
	c. If the above does not solve the issue	c. Contact Ossila

11. Revision History

Rev	Date	Description
2.0.A	14/11/2025	Initial release version