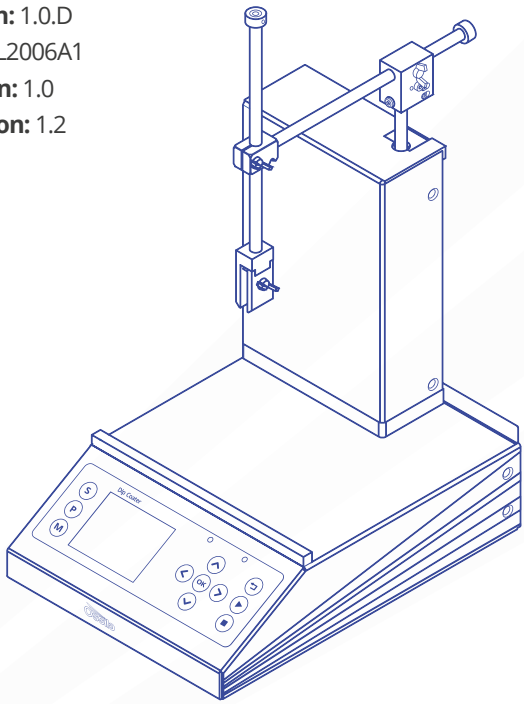
Ossila

DIP COATER
USER MANUAL

Manual Version: 1.0.D
Product Code: L2006A1
Product Version: 1.0
Software Version: 1.2



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Contents

1. Overview

The Ossila Dip Coater is a simple-to-use system designed to deposit thin wet films of solution. Dip coating involves the controlled immersion and withdrawal of a substrate from a reservoir of solution, it is widely used in research and development as well as large-scale production.

Film thickness is determined by a balance between several competing forces on the fluid's surface: viscous force, capillary forces, and draining forces. Ultimately, film thickness is determined by a combination of the solution properties and the rate of substrate withdrawal from the solution.

The Ossila Dip Coater can finely control properties such as the immersion speed, dwell, time, withdrawal speed, and drying time. This gives you accurate control over the final thickness and properties of the deposited film. Equipped with high-precision motors, the system offers excellent accuracy and reproducibility for travel speeds and substrate positioning. In addition, the system provides a wide range of coating speeds (ranging from 0.01mm s^{-1} to 50mm.s^{-1}), variable withdrawal rates for graded films, and the option to perform repeat cycles. Additional software features include user profiles, saveable programmes, crash-sensing software, and changeable working units.

The Ossila Dip Coater's wide working base means that larger beakers (up to 2 litres in size) can be used. As the movement distance of the arm is 110mm, you can coat substrates over 100mm in length. Its clamping mechanism uses a simple spring-loaded clamp for easy substrate removal. Clamp pressure can be adjusted to suit either delicate or heavy substrates. To ensure user safety, the Ossila Dip Coater comes with an inbuilt crash-sensing switch. This will stop the motor if the arm hits an object, protecting your substrates and glassware.

2. EU Declaration of Conformity (DoC)

We

Company Name: Ossila Limited
Postal Address: Solpro Business Park, Windsor Street.
Postcode: S4 7WB
City: Sheffield
Telephone number: +44 (0)114 2999 180
Email Address: info@ossila.com

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

Product: Dip Coater (**L2006A1**)
Serial number: L2006A1-xxxx

Object of declaration:

Dip Coater (**L2006A1**)

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: Sheffield
Date: 17/10/2018

[Декларация] за съответствие на ЕС
Производител: Ossila Ltd., Solpro Business Park, Windsor Street, S4 7WD, Великобритания
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.

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Výrobce: Ossila Ltd., Solpro Business Park, Windsor Street, S4 7WD, Spojené Království
Prohlašujeme na vlastní odpovědnost, že uvedené zařízeni je v souladu s příslušnými harmonizačními předpisy EU uvedenými na předchozích stranách tohoto dokumentu.

[Dansk] EU-overensstemme lseserklærin g
Producent: Ossila Ltd., Solpro Business Park, Windsor Street, S4 7WD, UK
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.

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Tootja: Ossila Ltd., Solpro Business Park, Windsor Street, S4 7WD, UK
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[Ελληνικά] Δήλωση πιστότητας ΕΕ
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[Hrvatski] E.U izjava o sukladnosti
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Produttore: Ossila Ltd., Solpro Business Park, Windsor Street, S4 7WD, UK
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[Lietuvių k.] **ES atitikties deklaracija**
Gamintojas: Ossila Ltd., Solpro Business Park, Windsor Street, S4 7WD, UK
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Erklærer under vårt eneansvar at utstyret oppført er i overholdelse med relevant EU-harmoniseringslavverk som står på de(n) forrige siden(e) i dette dokumentet.

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

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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**
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3. Safety

3.1 Warning

- Only use the 24V power adapter and power cord supplied with the unit.
- If using flammable or hazardous solvents, users are expected to be trained in their usage and carry out a COSHH risk assessment.
- Keep the area around the machine clear, approximately a 150 cm clearance above and 150 cm to the sides and behind.
- Keep clear of the machine while it is in operation.
- If using hazardous solvents always use within a fume hood or controlled environment.
- There are pinch points when in operation, keep hands clear of moving parts.
- Do not use in an explosive atmosphere

3.2 Use of Equipment

This Dip Coater is designed to be used as instructed and under the following 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 Dip Coater is supplied with a 24VDC power adapter with a power cord for the country of purchase, (in accordance with European Commission regulations and British Standards). The use of any other electrical power cables, adaptors, or transformers is not recommended.

3.3 Hazard Icons

Please note the following symbols that can be found at points throughout the rest of the manual.

Table 3.1. Hazard warning labels used in this manual.

Symbol	Associated Hazard
	General warning or caution, which accompanying text will explain
	Electrical shock
	Pinch point

3.4 General Hazards

Before installing or operating the Dip 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. Read this manual before operating or servicing this equipment.

I. CAUTION: During operation, the movement of the clamping arm could result in a pinch point hazard. Caution should be taken whenever the system is in operation.

3.5 Power Cord Safety

I. Emergency power disconnect options: Use the power cord as a disconnecting method and remove it from the power source. To facilitate disconnect, make sure the power outlet for this cord is readily accessible to the operator.

3.6 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.

3.7 Health and Safety – Installation

I. Pinch points are present during operation of the Dip Coater. As a precaution, users should avoid handling or leaning over the equipment during operation in order to avoid possible crushing or entanglement of hair and/or clothing.

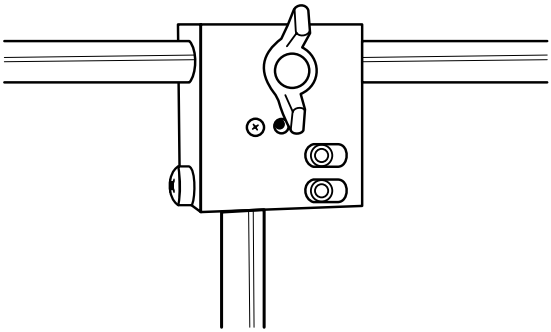
3.8 Health and Safety – Servicing

I. 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.

3.9 Crash-Detection Switch

The Dip Coater is fitted with an inbuilt crash-detection switch. The crash-detection switch is housed within the connection between the mounting arm and stage (see **Figure 3.1**). During normal operation, the safety switch will remain in a constant 'ON' state, with the bar attached to the motor pressing against the switch. When the arm encounters an object (e.g. a hand, beaker, or the base of the equipment), it will cause the arm and the housing of the switch to rotate relative to the bar attached to the motor. This releases the switch, setting it to an 'OFF' state and cutting power to the motor.

Figure 3.1. The housing for the emergency switch.



4. Unpacking

4.1 Packing List

The standard items included with the Dip Coater are:

- The Dip Coater unit
- Dipping arm and clamp
- Power adapter with a power cord (specific for country of operation)
- User manual

4.2 Damage Inspection

Examine the components for any evidence of shipping damage. If damage has occurred, please contact Ossila directly for further action. The shipping box comes with a shock indicator to show if there has been mishandling of the package during transportation.

5. Specifications

The Dip Coater specifications are shown in **Table 5.1.** and **Table 5.2.**

Table 5.1. Dip Coater specifications.

Dip Coater Feature	Specifications
Travel Length	100 mm
Minimum Speed	0.01 $mm.s^{-1}$; 0.6$mm.min^{-1}$
Maximum Speed	50 $mm\ s^{-1}$; 3000 $mm.min^{-1}$
Positional Reproducibility	0.01%
Rate Reproducibility	0.1%
Maximum Substrate Length	100 mm
Maximum Number of Cycles	1000 cycles
Maximum Timer Duration	99:59:59 (HH:MM:SS)
Power Supply	Input: 100-230V; 50/60Hz; 50VA Output: 24 VDC / 2A power adapter (supplied with the unit)
Dimensions (Depth x Width x Height)	300 mm x 200 mm x 350 mm (450 mm at full extension)
Operating Temperature/Humidity	5°C to 40°C; Up to 80% RH at 31°C
Weight	<5 kg

Table 5.2. Dip Coater Software Specifications.

Dip Coater Software	Specifications
Units	$mm.s^{-1}$, $mm.min^{-1}$
Users	Total of 10 user profiles to select from
Settings Mode	Set solution height; substrate length; substrate position; units
Manual Mode	Set immersion speed; withdrawal speed; control motion using keypad
Programmes	Each user has 10 individual programmes that can be saved
Programme Mode	Set immersion rate; dwell time; initial withdrawal rate; final withdrawal rate; dry time; number of cycles

6. System Components

The Dip Coater comes with the following components:

- Dip Coater unit (**Figure 6.1**)
- Power supply cord and power supply (**Figure 6.2**)
- Dipping arm and clamp

Figure 6.1. The Ossila Dip Coater.

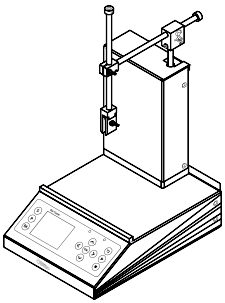
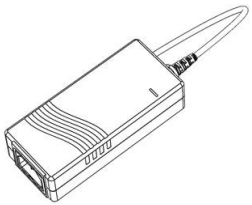


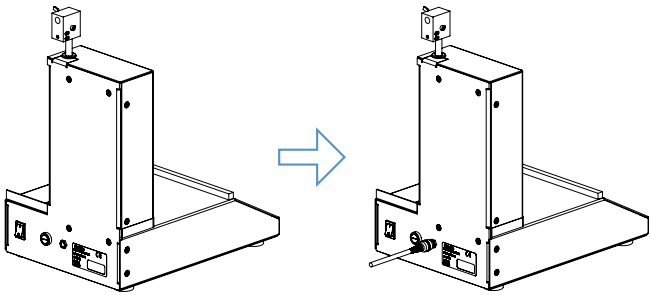
Figure 6.2. Main power cord and power supply. The Dip Coater is shipped with a plug suited for the country of purchase.



7. Installation

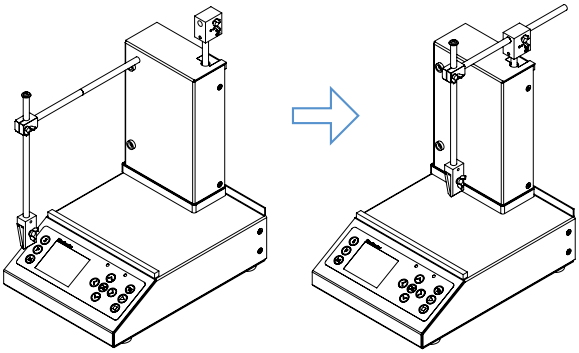
1. Place the unit on a solid, level surface.
    i. Ensure the area is free from vibrations, temperature extremes, and highly flammable or explosive materials. Keep the area surrounding the machine clear, with approximately 150 mm clearance above the machine, to the sides of the machine, and behind the machine.
2. Before plugging in the Dip Coater, ensure the power switch on the unit is switched to the '0' position (off).
3. Connect the power supply connector to the Dip Coater.
    i. See **Figure 7.1** for connecting the power supply cable to the Dip Coater.
4. Switch the Dip Coater power switch to the '1' position to turn on.

Figure 7.1. Installation of the Dip Coater by plugging in the power supply cable.



5. To install the dipping arm loosen the wingnut on the side of the black metal block that houses the crash detection switch.
6. Slide the dipping arm into the hole in the black metal block (See **Figure 7.2**). The dipping position of the arm can be adjusted by varying how far this is inserted.
7. When the dipping arm is in the desired position (ideally in the middle of the platform) tighten the wingnut screw until the arm no longer slides.

Figure 7.2. Installation of the Dip Coater by plugging in the power supply cable.

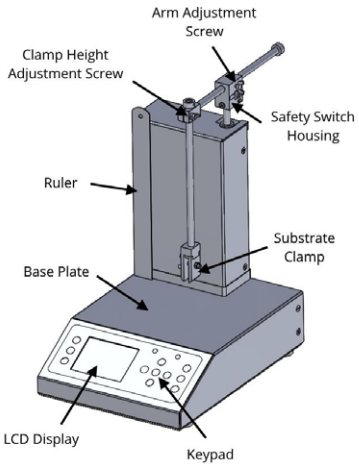


8. Operation

8.1 Dip Coater Diagram

An isometric view of Dip Coater is shown in **Figure 8.1**, with all the relevant components highlighted.

Figure 8.1. Dip Coater schematic.



8.2 Dip Coater User Interface

Figure 8.2 shows the front panel of the Dip Coater, where the function of each of the keypad buttons is explained in **Table 8.1.**

Figure 8.2. Dip Coater LCD screen and keypad.

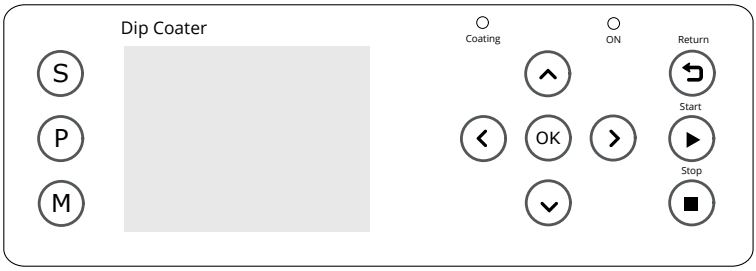


Table 8.1. Operational buttons and their associated functions.

Button	Function
S (SETTINGS)	Opens the Settings menu where the solution height, substrate length, and substrate position can be set. The units can also be altered here.
M (MANUAL)	Enters the Manual mode where the immersion speed and withdrawal speed can be set. The arm can be immersed and withdrawn manually.
P (PROGRAM)	Enters the Programming mode where saved programs can be selected and/or edited.
^	Navigates 'up' through the menu; increases selected values by 1; cycles through options; moves the arm upwards (manual mode only).
v	Navigates 'down' through menus; decreasing selected values by 1; cycling through options; moving the arm downwards (manual mode only).
>	Navigates 'right' through menus.
<	Navigates 'left' through menus.
OK	Press to select, edit, or accept changes.
■	Stop the currently running program.
▶	Stop the currently running program.

8.3 Practical Operation

When using volatile solvents or hazardous solvents/materials, the instrument should be placed within a fume hood or glovebox.
When using the Dip Coater, a general start-up procedure should be followed before beginning to coat.

8.3.1 Positioning the Dipping Arm

1. Turn the unit on, press the 'M' button to enter the manual mode. Adjust the arm to its lowest position.
2. Using the clamp height adjustment screw, raise the clamping arm so that it is around 10 mm higher than the maximum length of the substrate you are coating.
3. Press return to raise the arm to the top.

8.3.2 Positioning the Reservoir and Dipping Arm

1. Place the solution reservoir on the base plate of the unit.
2. Centre the reservoir under the dipping arm.
3. The position of the dipping arm can be adjusted to be nearer or further away from the user by loosening the arm adjustment screw.
4. Ensure that there is a distance of at least 1 cm from the edge of the baseplate of the Dip Coater.

8.3.3 Adjusting Clamp Strength

1. Pull back one half of the clamp and insert a substrate, being sure to provide support in case the clamp strength is not yet high enough.
2. Let go of the substrate to check if the clamp can currently support its weight.
3. If the substrate begins to slip, tighten the clamp adjustment screw to increase the pressure from the spring.
4. The screw should be tightened until the substrate is held securely in place.
5. If a delicate substrate is being used, you can reduce the clamp pressure by loosening the adjustment screw.

8.3.4 Setting the Solution Height, Substrate Position, and Coating Length.

In the 'settings' mode, you can:

1. Update the length that you wish to coat over.
2. The height of the solution relative to the ruler provided.
3. The position of the bottom of the mounted substrate relative to the ruler provided.

8.4 Program Operation

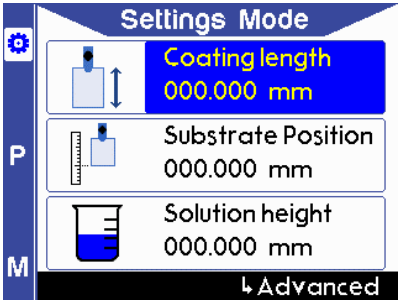
8.4.1 Dip Coater Start Up

1. Switch ON (position '1') the Ossila Dip Coater power switch. The screen below will be shown.

2. After the Ossila logo page, reset the arm to the 'Home' position by pressing the **OK** button.

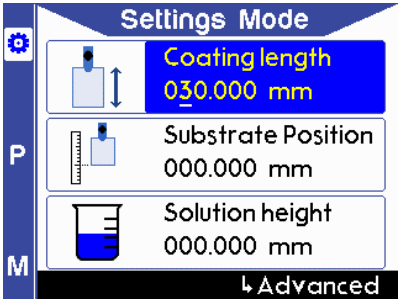
While the arm is moving to the 'Home' position, the message below will be shown on the screen.

Once the system is at the 'Home' position, the 'Settings Mode' page will be prompted.

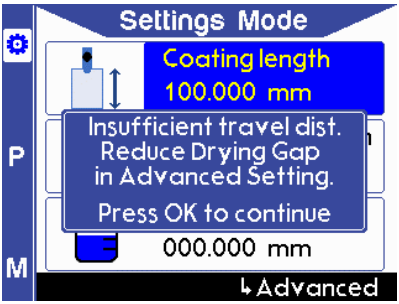


8.4.2 Settings Mode

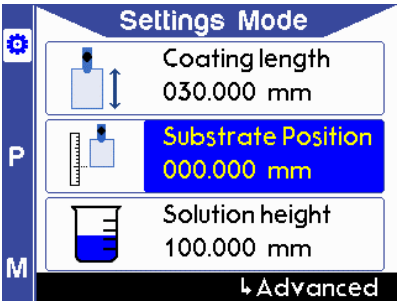
1. To enter 'Settings' mode, press the **S** button (located at the top left-hand side of the screen).
2. To edit the coating length value, press the **OK** button, then navigate between the digits by pressing either the **left** or **right** button. To increase or decrease the value of the selected digit, press the **up** or **down** button. Press **OK** again to exit the edit mode.

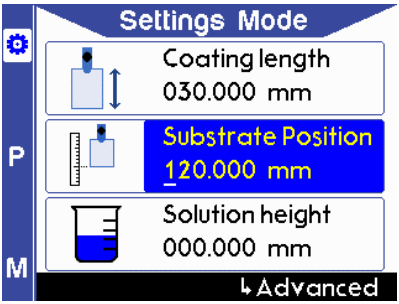


Note: *The maximum travel distance of the system is 100 mm. Any coating length and drying gap values (refer to Step 7) should be within maximum travel distance. The coating length will be auto-corrected if the added value is more than 100mm, and you will be alerted by a warning message.*

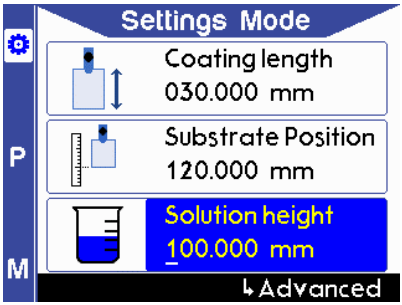


3. To navigate to 'Substrate Position', press the **down** button and then **OK** to edit the value. Press the **left** or **right** button to navigate between the digits and press the **up** or **down** button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.

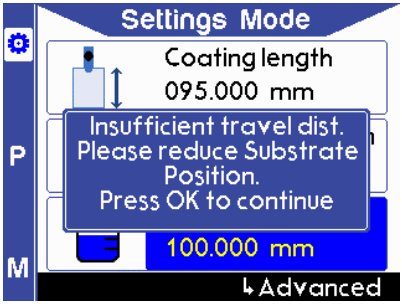




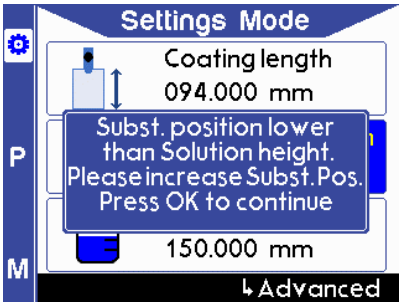
4. To navigate to 'Solution Height', press the **down** button and then **OK** to edit the value. Press the **left** or **right** button to navigate between the digits and press the **up** or **down** button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.



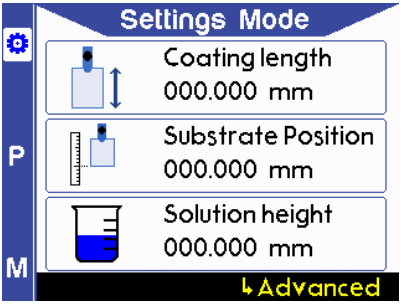
Note: *A warning message will appear if the difference between substrate position and solution height plus coating length and drying gap is more than the maximum travel distance (100 mm).*

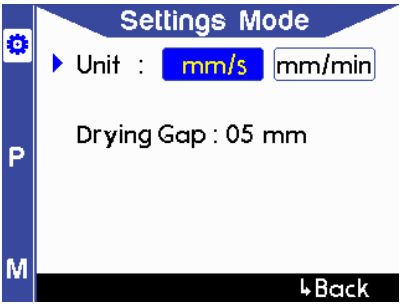


Note: *A warning will appear if the substrate position is set below the solution height.*

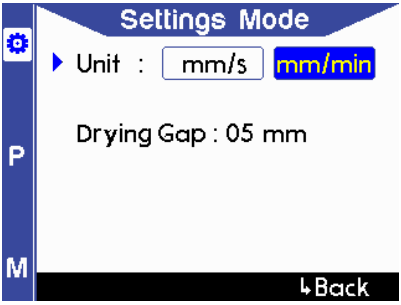


5. To navigate to 'Advanced Settings', press the **down** button until 'Advanced' is highlighted in yellow, then press **OK**.



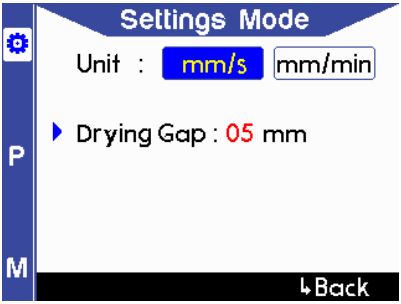


6. To change the unit from **mm/s** to **mm/min**, press **OK** to edit and press the **left** or **right** button to select the unit.

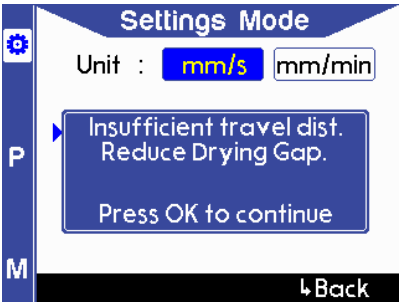


7. To change the 'Drying Gap' value, navigate by pressing the **down** button, and press the **OK** button to edit the value. Press the **up** or **down** button to increase or decrease the value. Press **OK** again to exit the edit mode. The maximum drying gap is **50 mm**, and the default value is **5 mm**.

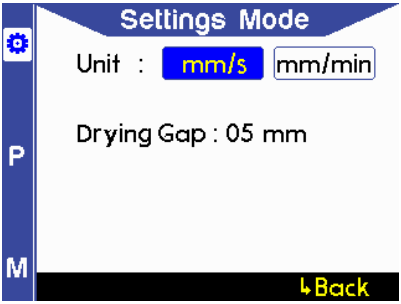
Note: *The default 'Drying Gap' is 5 mm. The value will reset every time the Dip Coater is switched OFF.*



Note: *The maximum travel distance of the system is 100 mm. Any increases in coating length value (in (Step 2.) and Drying Gap should be within this maximum travel distance. The coating length will be auto-corrected if the added value is more than 100 mm.*

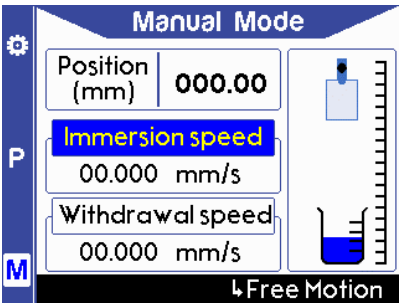


8. To navigate to a previous page, press the **down** button until 'Back' is highlighted in yellow to select it, and then press **OK**.

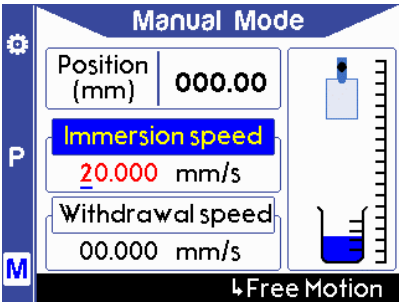


8.4.3 Manual Mode

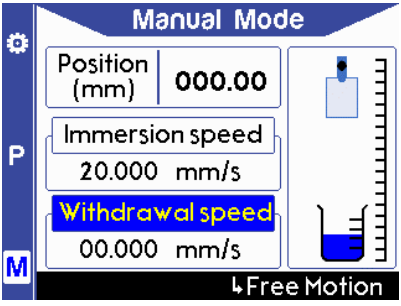
1. To enter 'Manual Mode', press the **M** button on the left-hand side of the screen.

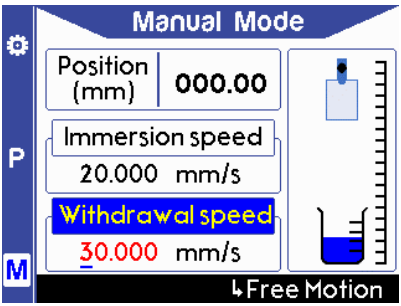


2. To set the immersion speed, navigate to 'Immersion speed' and press **OK** to edit the value. To change the value, press the **left** or **right** button to navigate between the digits, and press the **up** or **down** button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.



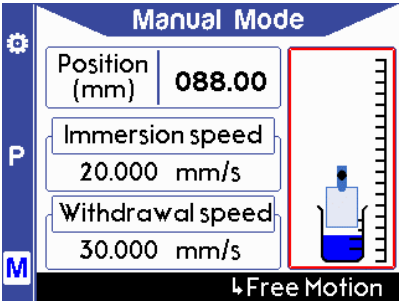
3. To set the withdrawal speed, navigate to 'Withdrawal speed' and press the **OK** button to edit the value. To change the value, press the **left** or **right** button to navigate between the digits, and press the up or down button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.



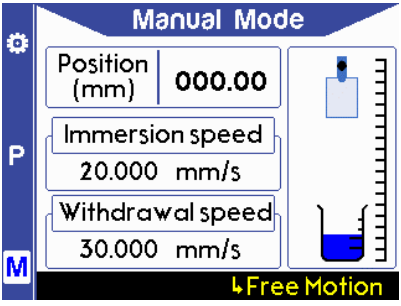


4. To operate the clamping arm, press the left button to select the diagram on the screen. Then, press the up or down button to move the arm based on the set speed.

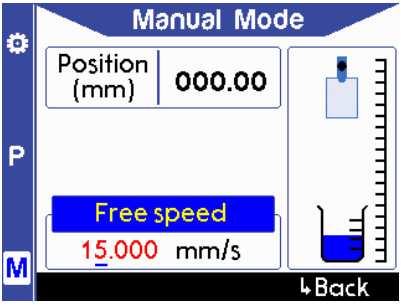
   Note: *The maximum travel distance is 100 mm.*



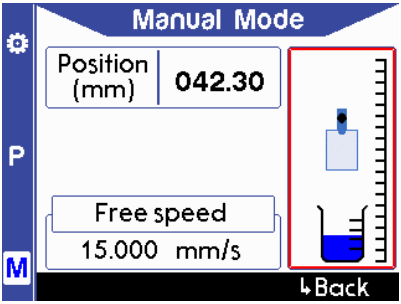
5. Alternatively, you can move the clamping arm with a single speed for up-and-down motion. Navigate to 'Free Motion' until it is highlighted in yellow, then press **OK**.



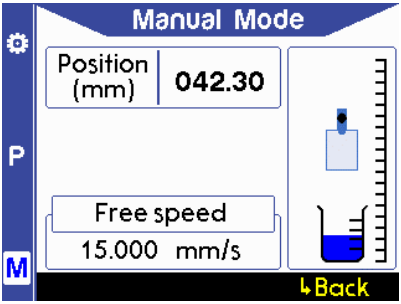
6. To set the Free speed, press **OK** to enter edit mode. To change the value, press the **left** or **right** button to navigate between the digits and press the **up** or **down** button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.

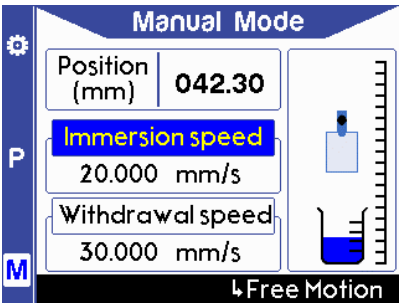


7. To operate the clamping arm, press the **left** button to select the diagram on the screen. Then, press the **up** or **down** button to move the arm based on the set speed.



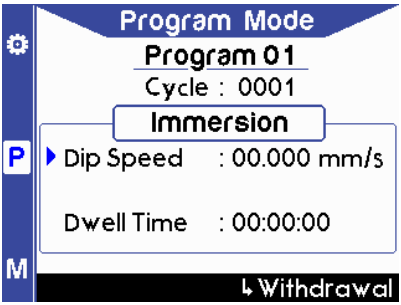
8. You can navigate to a previous page by selecting 'Back' at the bottom of the screen and pressing **OK**.





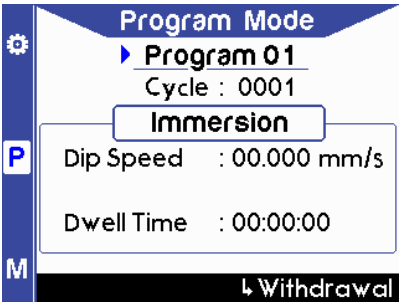
8.4.4 Program Mode

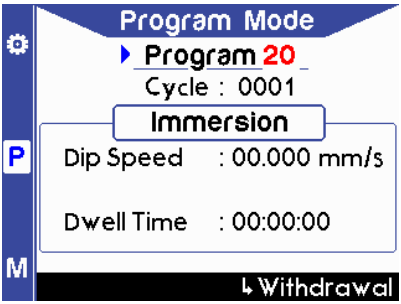
1. To enter 'Program Mode', press the **P** button on the left-hand side of the screen.



2. To set the program number, navigate by pressing the **up** button, then press **OK** to enter edit mode. To change the value, press the **up** or **down** button and press OK again to exit edit mode.

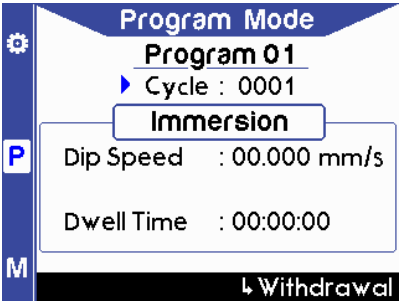
   Note: *The maximum number of programs is 20.*

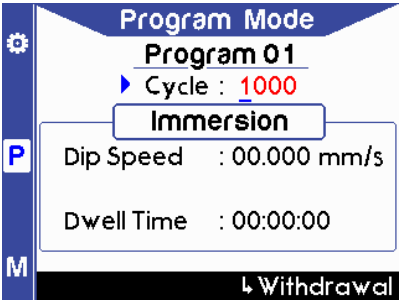




3. To set the number of cycles, navigate to 'Cycle' by pressing the **down** button and press **OK** to enter edit mode. To change the value, press the **left** or **right** button to navigate between the digits, and press the **up** or **down** button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.

   Note: *The maximum number of cycles is 1000.*

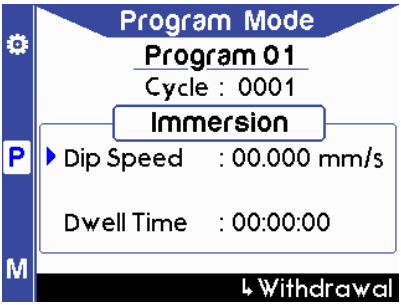


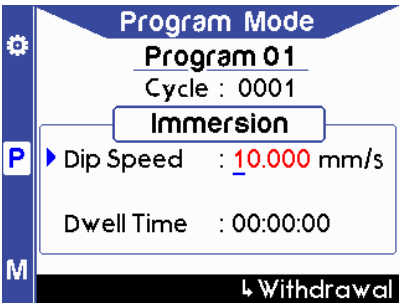


4. To set the immersion speed, navigate to 'Dip Speed' by pressing the **down** button, and press **OK** to enter edit mode. To change the value, press the **left** or **right** button to navigate between the digits, and press the **up** or **down** button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.

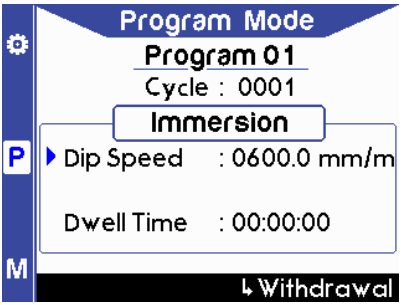
   Note: *The maximum Dip Speed is* ***50 mm/s*** *or* ***3000 mm/min***

   a.) Unit in **mm/s**



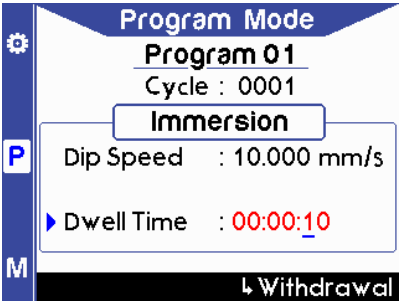


   b.) Unit in **mm/min**

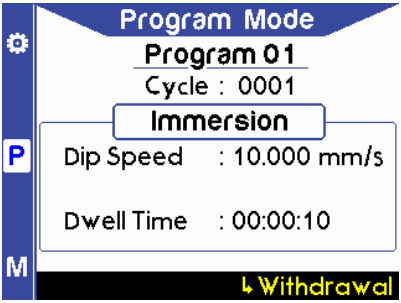


5. To set the 'Dwell Time', navigate to it by pressing the **down** button, then press the **OK** button to enter edit mode. To change the value, press the **left** or **right** button to navigate between the digits, and press the **up** or **down** button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.

   Note: *The Dwell Time format is:* ***HH:MM:SS*** *(H = Hour, M = Minute, S = Second).*



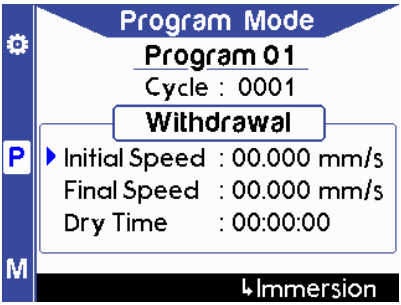
6. To enter the withdrawal page, navigate to 'Withdrawal' at the bottom of the screen until it is highlighted in yellow, then press **OK**.

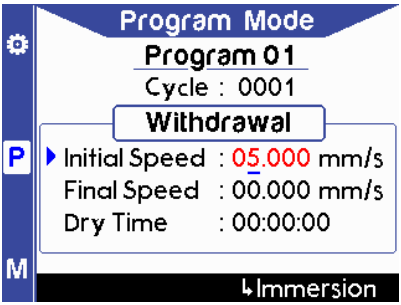


7. To set the initial withdrawal speed, navigate to 'Initial Speed' by pressing the **down** button, and press the **OK** button to enter edit mode. To change the value, press the **left** or **right** button to navigate between the digits, and press the **up** or **down** button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.

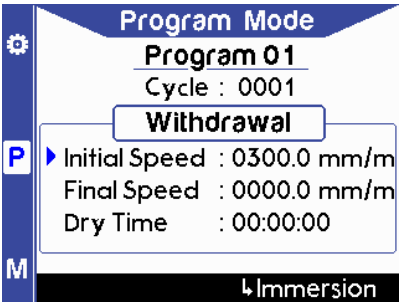
   Note: *The maximum initial withdrawal speed is* ***50 mm/s*** *or* ***3000 mm/min***

a.) Unit in **mm/min**





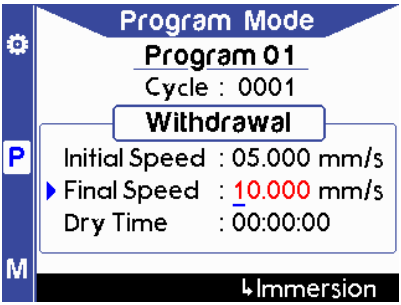
b.) Unit in **mm/min**



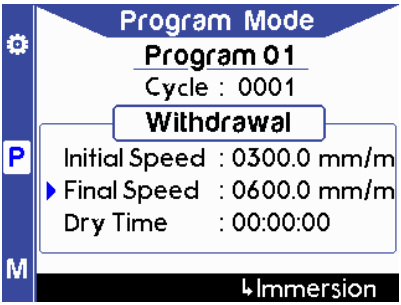
8. To set the final withdrawal speed, navigate to 'Final Speed' by pressing the **down** button, and press the **OK** button to enter edit mode. To change the value, press the **left** or **right** button to navigate between the digits, and press the **up** or **down** button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.

   Note: *The maximum Final Withdrawal Speed is* ***50 mm/s*** *or* ***3000 mm/min***

   a.) Unit in **mm/s**

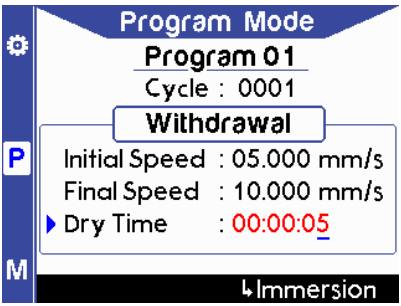


   b.) Unit in **mm/min**

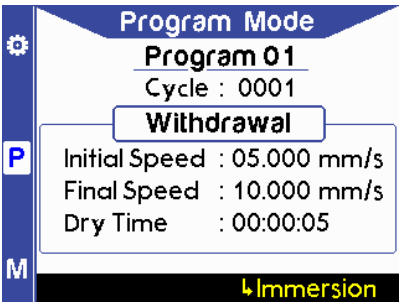


9. To adjust the dry time, navigate to 'dry time' by pressing the **down** button, and press the **OK** button to enter edit mode. To change the value, press the **left** or **right** button to navigate between the digits, and press the **up** or **down** button to increase or decrease the selected digit. Press **OK** again to exit the edit mode.

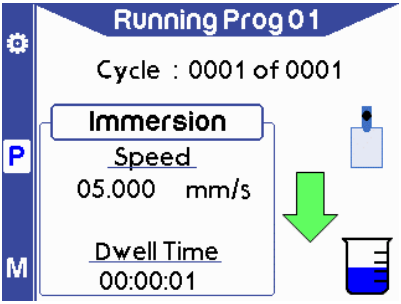
   Note: *The dry time format is:* ***HH:MM:SS****; (H = Hour, M = Minute, S = Second).*

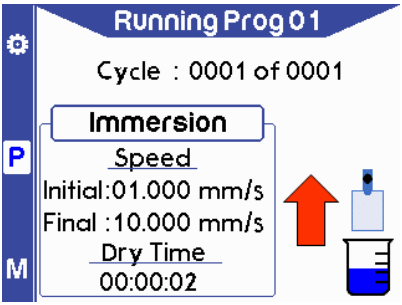


10. To return to the immersion page, navigate to 'Immersion' at the bottom of the screen until it is highlighted in yellow, then press **OK**.

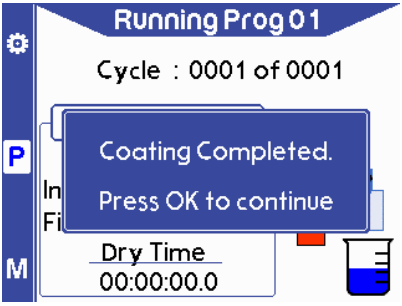


11. Once the all the values have been set, press the **START** button to run the program.



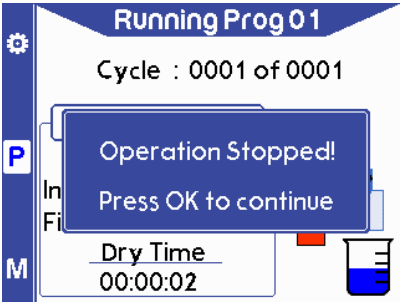


Once the coating cycle has been completed, the following message will appear:



Note: *A warning will appear if any of the conditions below occur.*

a) Operation has been stopped by pressing the **STOP** button.

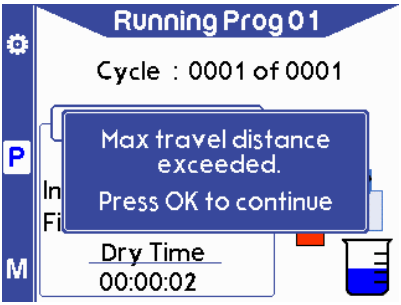


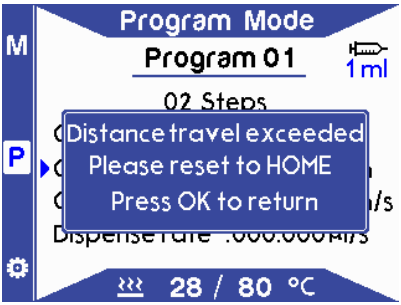
b) Immersion – Dip speed not set.

c) Withdrawal – Initial speed not set.

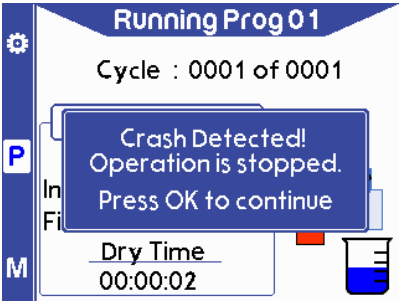
d) Withdrawal – Final speed not set.

e.) When the maximum travel distance exceeds 100 mm a warning will be given.





f.) Crash detected between substrate and other hard surface (e.g. beaker or base of the case).



8.5 Operational Safety

Any procedure that is done with the Dip Coater should be carried out with a suitable operating procedure, risk assessment, and COSHH forms to ensure that the user knows and understands the potential hazards inherent to the system of work they are undertaking. The following are safety points that should be noted by the user before any procedure is undertaken with the Dip Coater.

8.5.1 Pinch Points

The dip coating arm presents the risk of a pinch point to the user. We recommend that users do not place their hands near the moving parts while a programme is running or during the manual movement of the Dip Coater.

8.5.2 Sources of Ignition

Solvents can often be highly volatile, with some having flash and flame points below that of room temperature. To minimise the risk of fire with solutions in use, users should ensure that no sources of ignition are placed close to the dip coating system. In the case of using any hazardous solvents the system should be housed in a fume hood where solvent vapour cannot accumulate.

9. Maintenance

9.1 Cleaning

Maintenance consists of periodic cleaning. The exterior of the instrument can be cleaned with a clean, dry cloth to remove any oil, grease, or grime. Never use liquid solvents or detergents. Repairs or servicing not covered in this manual should only be performed by qualified personnel.

10. Troubleshooting

Table 10.1. Troubleshooting guidelines for the Ossila Dip Coater

Problem	Possible cause	Action
No power / display	a.) The power switch on the unit is in the OFF position	Check the connection and ensure the power is turned ON
	b. The power supply may not be connected properly	Ensure the unit is firmly plugged in to the power supply, and the plug is firmly connected to both the adapter and the working power socket
	c. The fuse on the rear panel has blown	Ensure the unit is unplugged. Check the fuse on the rear panel. If it has blown, replace with a suitably rated 1A slow blow fuse
	d. The power supply adapter has a fault	Contact Ossila for a replacement power supply adapter
	e. No obvious cause	If all the above causes have been considered, there may be a fault on the board. Please contact Ossila for information
Crash Warning	a. The safety switch in the crash switch housing has not been returned to its ON state	a. Ensure that the arm position is returned to its initial position and that no obstruction to the arms movement remains
	b. The safety switch in the crash switch housing has developed a fault	b. If the above has not resolved the issue, please contact Ossila for more information
System Error	a. The secondary safety switch has accidentally been triggered	a. Turn the unit off and on again to see if the warning remains
	b. Internal fault in the secondary safety switch	b. If all the above has been considered there may be a fault with the secondary safety switch. Contact Ossila for more information

11. Related products

11.1 Compatible Substrates

PV and OLED ITO Scale-Up Substrates

A 25 x 75 mm ITO patterned glass substrate, available with either module or pixelated design.

Product codes: S241 / S251

OFET ITO Scale-Up Substrates

A 25 x 75 mm version of our popular interdigitated ITO substrates for OFET and sensing.

Product codes: S271

ITO Coated Scale-Up Substrates

A 25 x 75 mm unpatterned ITO glass substrate useful for custom patterning and other varied uses.

Product code: S281

Quartz Coated Scale-Up Substrates

These 25 x 75 mm substrates have a thin layer of synthetic quartz on the surface and are useful for control tests.

Product code: S261

11.2 Related Equipment

UV Ozone Cleaner

For removing contamination on the surface of samples, providing you with ultraclean surfaces within minutes.

Product code: L2002A2

Solar Cell I-V Test System

Reliable and accurate characterisation of photovoltaic devices. Take full control of your solar cell measurements.

Product codes: T2003B2

Spin Coater

Produce high-quality coatings without any substrate warping. Perfect for busy labs with limited space.

Product code: L2001A3

Four-Point Probe Test System

Quick, easy, and accurate characterisation and sheet resistance measurements for various materials.

Product code: T2001A3

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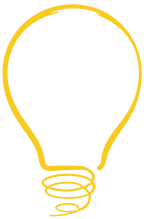

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