

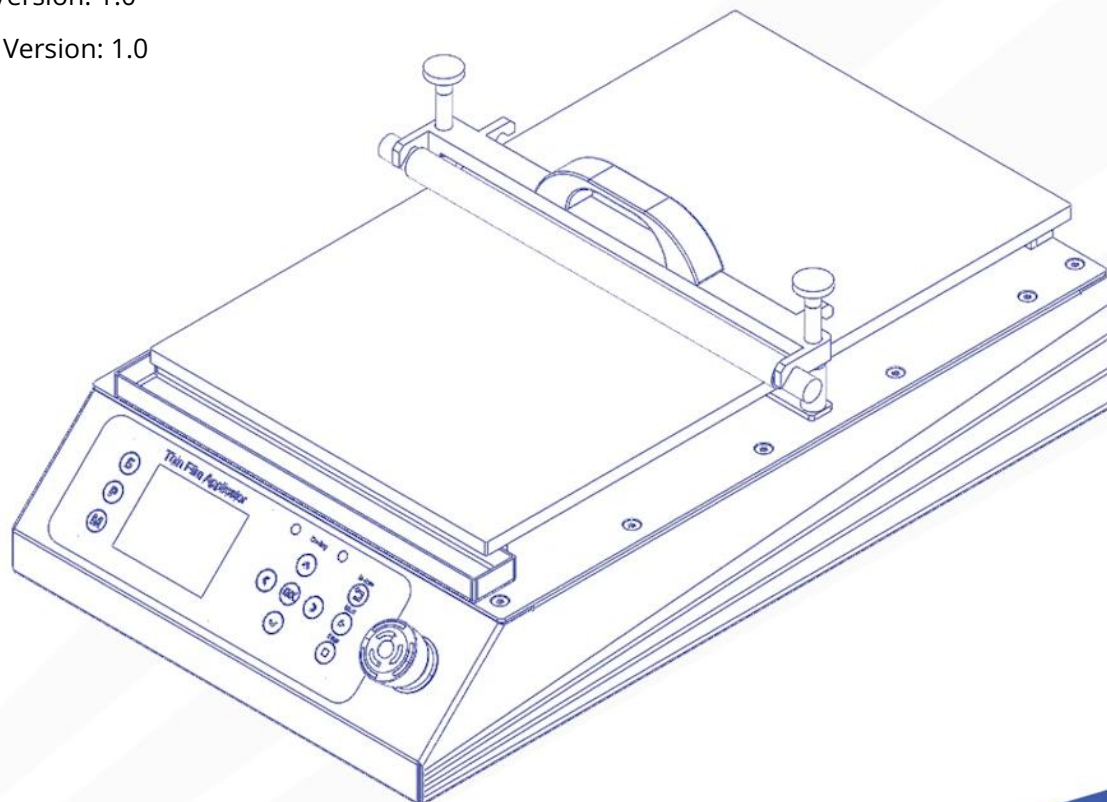
AUTOMATIC FILM APPLICATOR USER MANUAL

Manual Version: 1.0.0

Product code: L2009

Product Version: 1.0

Software Version: 1.0



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1. 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

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

Product: Automatic Thin Film Applicator (L2009A1)

Serial number: L2009A1- xxxx

Object of declaration:

Automatic Thin Film Applicator (L2009A1)

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: 27/01/2025

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

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[Español] Declaración de conformidad UE

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

[Lietuvių k.] ES atitikties deklaracija

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[Magyar] EU-s megfeleléségi nyilatkozat

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[Suomi] EU-vaatimusten mukaisuusvakuutus

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[Svenska] EU-försäkran om överensstämmelse

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2. Overview

Thin film applicators involve the use of various types of gap applicators to produce thin wet films. Applicators rely on the geometry of the gap to determine how the liquid flows through the gap and ultimately what the thickness of that wet film is. There are several types of gap applicators including wire wound bar, Meyer rod, adjustable film applicators, blade coaters, and baker applicators among some of the many types that are used.

The automatic thin film applicator allows users to automate the process of applying the film. The system work by mounting the sample you wish to coat on the glass stage, placing your applicator in front of the moving bar, applying a small volume of solution, and then setting the desired movement speed and distance.

Th automatic thin film applicator will then push the gap applicator across the sample at a fixed consistent rate. This allows for more uniform films with less defects as the quality of the film will be dependent upon the consistency of the movement speed of the gap applicator. This removes human error from the use of these types of coaters improving reproducibility of thin wet films using gap applicators.



Figure 2.1 Ossila Automatic Thin Film Applicator

The automatic thin film applicator is designed to be simple to use; with a quick load and unloading of the applicator; a convenient drip tray that can be positioned at the end of travel of the stage; and a alignment grid for consistent positioning of samples. The automated system also comes

with simple to use software that allows users to set up programs with a given speed and travel distance. There are also options for setting between soft stops and hard stops, setting a specific home position for the start of coatings, and the ability to set the direction of travel to either forward or backwards. This gives a wide range of flexibility in what can be done with the system.

3. Specifications

The Automatic Thin Film Applicator specifications are shown in Table 3.1

Specification	Value
Maximum Coating Width	200 mm
Maximum Travel Length	290 mm
Minimum Stage Speed	0.5 mm s ⁻¹
Maximum Stage Speed	250 mm s ⁻¹
Stage Surface	9mm Thick Toughened Glass
Power Supply	Input: 90-264 VAC 50/60Hz Output: 24 VDC, 2 A
Dimensions (Depth x Width x Height)	360 mm x 280 mm x 190 mm (14.2" x 11" x 7.5")
Weight	6.45 kg

Table 3.1 Automated Thin Film Applicator specifications

4. Warranty

The Automatic Thin Film Applicator is covered by Ossila's two-year warranty. There are no user-serviceable parts in this unit other than the fuse (which is accessible externally). Any modification or alteration may damage the equipment, cause injury, or death. It will also void your equipment's warranty. If servicing or repair is needed, please contact Ossila to organise a return. Our service department will also quote for any repairs to faults that occur outside the 2-year warranty period.

For further information on the terms and conditions of our 2-year warranty please visit our website at <https://www.ossila.com/pages/warranty-information>.

5. Unpacking

5.1 Packing List

The items included in the Automatic Thin Film Applicator are:

- Automatic Thin Film Applicator
- AC/DC Desktop Power Adapter
- IEC C13 Mains Lead

5.2 Damage Inspection

Upon receiving the unit, examine the components for evidence of shipping damage. If damage has occurred, please contact Ossila directly for further action. The shipping comes with a shock indicator to show if the package has received an impact during transportation.

6. Safety

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 risk assessment**
- **Keep the area around the machine clear, 1 m clearance above and 30 cm to the sides**
- **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**

6.1 Use of Equipment

This Automatic Thin Film Applicator is designed to be used as instructed, which is under the following conditions:

- Indoors in a laboratory environment (pollution degree 2)
- At altitudes up to 2000 m
- At temperatures between 5 °C and 40 °C; and a maximum relative humidity of 80% at 31 °C

The Automatic Thin Film Applicator is supplied with a 24 V DC / 2 A power adapter with a power cord for the country of purchase. This is in accordance with European Commission regulations and British Standards. Use of any other electrical power cables, adapters, or transformers is not recommended.

6.2 Hazard Icons

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




Symbol	Associated Hazard
	General warning or caution, explained within the accompanying text
	Electrical shock
	Pinch point, or entanglement hazard

Table 6.1 Hazard warning labels used in this manual.

6.3 General Hazards

When installing or operating the Automatic Thin Film Applicator, there are several health and safety precautions that must be considered.

WARNING: Improper handling when operating or servicing this equipment can result in serious injury. Pay attention to the following hazards when operating this equipment.



Pinch point and entanglement hazards are present during operation. As a precaution, users should avoid handling or leaning over the equipment during operation to avoid possible crushing or entanglement of hair and/or clothing. The unit weighs approximately 6.45 kg. Care should be taken when handling or moving the unit.



In the event of an emergency, the unit can be disabled by disconnecting the power cord from the power supply. Make sure that the power outlet for this cord is readily accessible to the operator.



Service 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.

6.4 Emergency Stop

The Automatic Thin Film Applicator is fitted with an emergency stop button that can be pressed in the event of emergencies e.g. the trapping of objects within pinch points. When pressed, the emergency stop button cuts off the power to the system and a buzzer will turn on to indicate that the button has been pressed. The emergency stop button will remain pressed until the button is rotated clockwise and released. Once released, the system can be restarted by turning the unit off and on again using the on/off switch at the back of the unit. The emergency stop button should not be used for powering down the system after use and should only be used in emergency situations.



Figure 6.1 The emergency stop button mounted to the front of the Automatic Thin Film Applicator.

6.5 Operational Safety

Any procedure involving the Automatic Thin Film Applicator should have a suitable operating procedure, risk assessment and COSHH form(s) to ensure that the user is aware of the potential hazards inherent to the work they are undertaking. The following are safety points that should be noted by the user before any procedure is undertaken with the Automatic Thin Film Applicator.

6.5.1 Pinch Points



The moving stage present the risk of pinch points to the user. It is recommended that any loose articles of clothing and hair are tied back and secured before using the system. In addition, we recommend that users do not place their hands near the moving sections when programs are running or when there is manual movement of the applicator is under way.

6.5.2 Sources of Ignition



Volatile solvents can present a risk of fire due to the evaporation and formation of solvent vapours, where a source of ignition may ignite the solvent. To minimize this risk users should ensure that no sources of ignition are placed close to the Automatic Thin Film Applicator.

7. Maintenance

7.1 Cleaning

Maintenance consists of periodic cleaning. The exterior of the instrument can be wiped with a clean, dry cloth to remove any oil, grease or dirt. Small amounts of solvent can be used to clean the stage and head once it has cooled to room temperature.

8. Installation

The following procedure should be followed when setting up the unit for the first time.

1. Place the unit on a solid, level surface. If necessary, the feet can be rotated to adjust their height and level the unit. Ensure the area is free from vibrations, temperature extremes and highly flammable or explosive materials. Keep the area surrounding the machine clear, with approximately 1 m clearance above the machine and around 30 cm clearance on the sides.
2. Before plugging in the Automatic Thin Film Applicator, ensure the power switch on the unit is switched to the '0' position (off).
3. Connect the power supply connector to the Automatic Thin Film Applicator (shown in Figure 8.1).

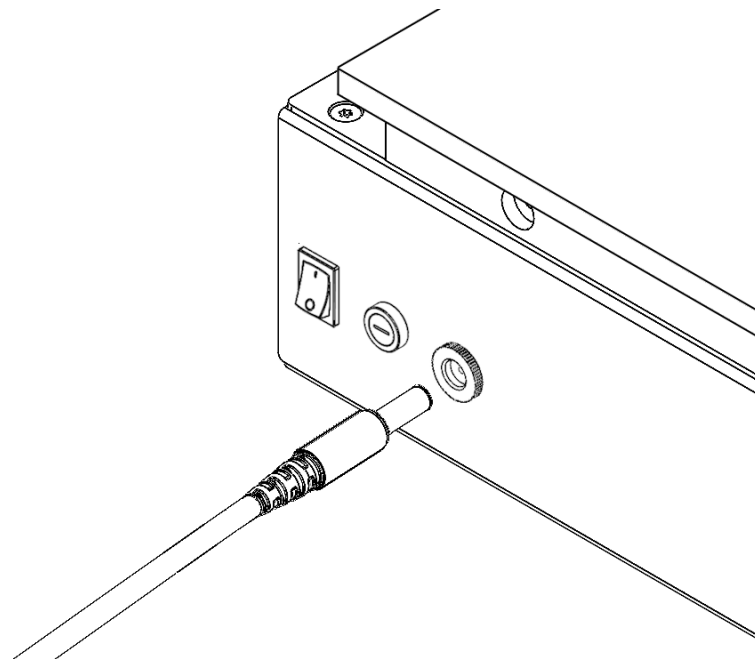


Figure 8.1. Installation of the power supply cable.

9. Operating the Automatic Film Applicator

9.1 User Interface

The control panel of the Automatic Film Applicator is shown in Figure 9.1. It consists of an LCD display, 11 control buttons and an indicator. The functions of the buttons are described in Table 9.1.

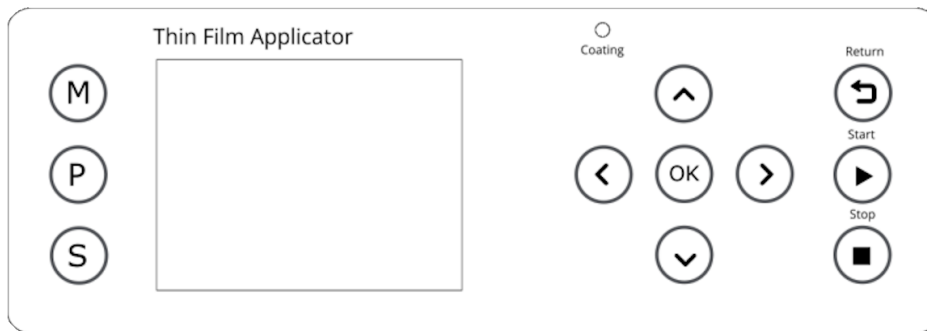


Figure 9.1 Automatic Film Applicator LCD display and keypad.

Button	Name	Function
(M)	Manual	Enter Manual Mode where the automatic film applicator stage can be moved
(P)	Program	Enter Program Mode where saved programs can be selected and/or edited
(S)	Settings	Enter Settings Mode, where direction can be set, and stopping method.
(^)	Up	Navigating Up through menus; increasing selected values by 1; increasing unit size
(v)	Down	Navigating Down through menus; decreasing selected values by 1; decreasing unit size
(>)	Right	Navigating Right through menus, changing current program or step
(<)	Left	Navigating Left through menus, changing current program or step





	OK	Press to select, edit, or accept changes
	Stop	Stop current running program
	Start	Run currently selected program
	Return	Return the stage to the home position


Table 9.1 Operational buttons and their associated functions.

9.2 Program Operation

9.2.1 Turning the unit on

1. Turn the Ossila Automatic Film Applicator power switch **ON** (position '1'). The bootup screen will show.



2. After the bootup, reset the stage to its 'home' position by pressing . This will move the stage to the furthest back point.



3. Whilst the stage is moving to the 'home' position, the following message will be shown.



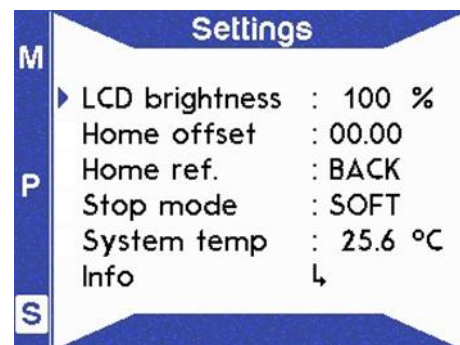
4. Once the system is at the 'home' position, the **Program Mode** page will be prompted.



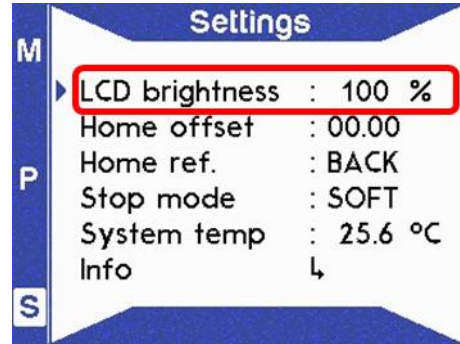
9.2.2 Settings Mode

The Settings Mode allows the user to input parameters related to the hotplate operation, syringe properties and stage homing. Edit mode can be entered by pressing **OK** on the required line. Entering edit mode on any parameter will turn the text of the parameter red.

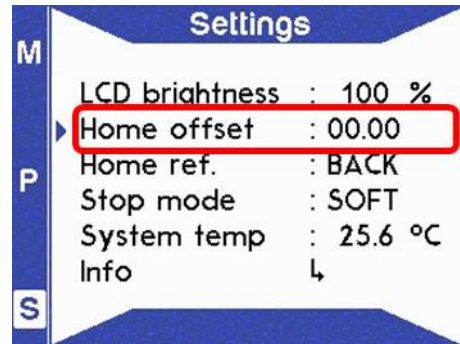
1. Press **S** to enter **Settings Mode**.



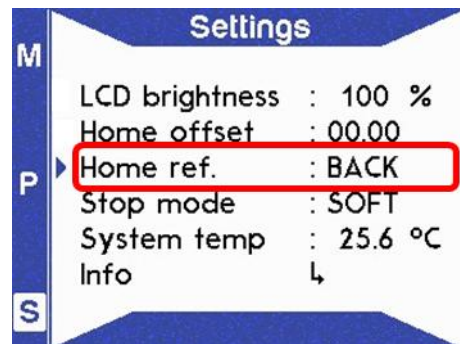
2. The first option in settings allows the users to adjust the LCD brightness. To edit press (OK), to change the value press the (↑) or (↓) buttons. This will change the value by 5% each time.



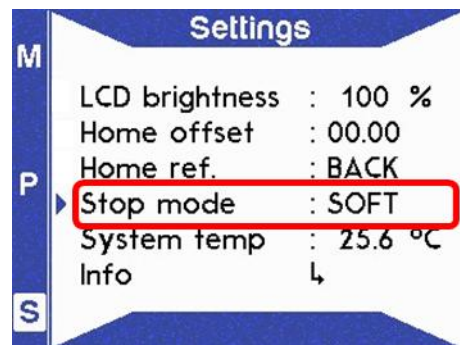
3. Home offset shows the current home position offset. This can be adjusted from the manual mode by holding the home button. This will then set the home offset to the current location.



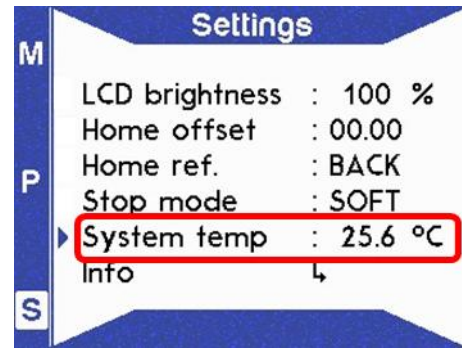
4. Home references allows you to set whether the front or the back of the unit are set as the home position. This will also change the direction of travel from the home position to the opposing side. This will reset the current home offset.



5. Stop mode allows you to set how the motor comes to a stop. This is either HARD where the motor immediately stops, or SOFT where the applicator decelerates to a stop over a short period.



- 6. System Temperature tells you the current board temperature.



- 7. System Info displays contact information and firmware version of the system.



9.2.3 Manual Mode

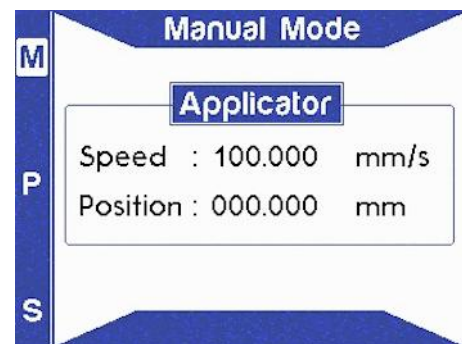
Manual Mode allows direct control the stage positions. Entering edit mode on the speed parameter will turn the text of the parameter red.



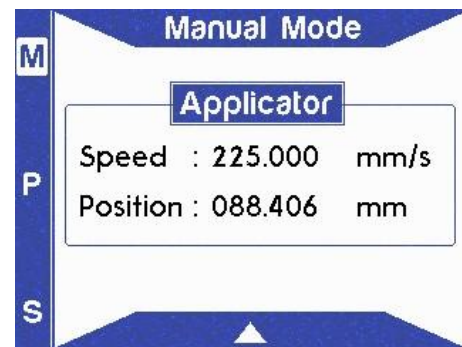
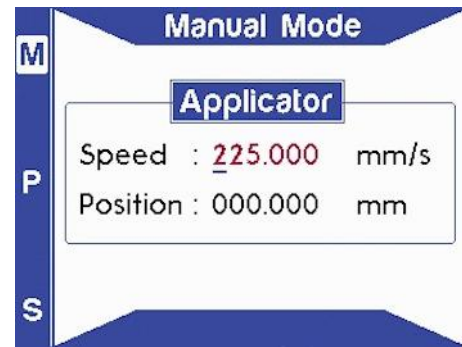
WARNING: Pinch points and entanglement

The movement of the stage could present pinch hazards. Care should be taken when the system is running.

- 1. To enter **Manual Mode**, press **(M)** located at the top left-hand side of the screen.



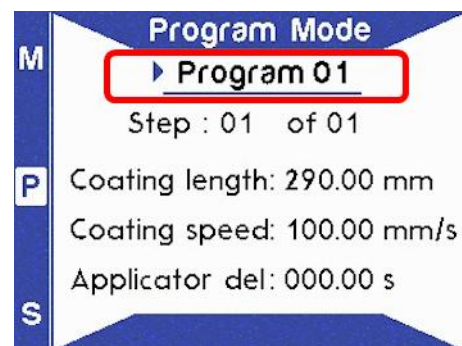
- The stage speed can be adjusted. To change the speed, press **OK** to enter edit mode and use the **<** or **>** to navigate to the digit to edit and **^** or **v** to change the value.
- To move the stage position manually, press **<** or **>** while not in edit mode. The current position display will be updated automatically.



9.2.4 Program Mode

Program Mode allows the user to set up a coating process by defining multiple steps with travel length and speed. Press the **P** button to enter Program Mode. Entering edit mode on any parameter will turn the text of the parameter red.

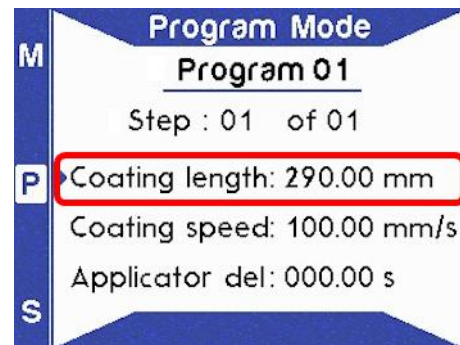
- The unit can store up to 20 programs in memory with up to 100 steps in each. The current program can be changed by navigating to 'Program' with the **^** button. Press **OK** to enter edit mode and press **^** or **v** to change the program number. Press **OK** to exit edit mode. Program number can also be changed using **<** or **>** without entering edit mode.



2. To change the number of steps in the program, navigate to steps line and press **OK** to edit the value. Press **^** or **v** to change the value. Press **OK** to exit edit mode.



3. To change the coating length or the coating speed in the program, navigate to parameter and press **OK** to edit the value. Press **^** or **v** to change the values and **<** or **>** to navigate digits. Press **OK** to exit edit mode.



4. If desired a delay step can be added to the program. This will set the length and speed to zero for this step. Press **OK** to edit the value. Press **^** or **v** to change the values and **<** or **>** to navigate digits. Press **OK** to exit edit mode.



9.3 Installing A Film Applicator

Depending on the applicator you decide to use the installation method may be different. For wire wound bars there are two hooks available one for 200mm width bars and the other for 250mm width bars. To install the wire wound bar into the hooks simply pull on the handle to raise the applicator bar place the wire wound bar underneath and let go. The spring-loaded applicator bar will hold the bar down, the amount of force applied by the springs can be adjusted by tightening or loosening the knobs at the end of the applicator bar.

For baker applicators, or adjustable applicators the applicator should be place in front of the applicator bar.

10. Automatic Film Applicator Troubleshooting

Problem	Possible cause	Action
No power / display	The power switch on the unit is in the OFF position	Check the connection and ensure the power is turned ON
	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
	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 2A slow blow fuse
	The power supply adapter has a fault	Contact Ossila for a replacement power supply adapter
	No obvious cause	If all the above causes have been considered, there may be a fault on the control board. Please contact Ossila for information
Crash Warning	The secondary safety switch has accidentally been triggered	Switch the unit off and on again
	Internal fault in the secondary safety switch	If all the above has been considered there may be a fault with the secondary safety switch; contact Ossila for more information

11. Revision History

Rev	Date	Description
1.0.0	19/01/2025	Initial release version