



M.M.868

GB - Operating instructions M.M.868



Issue / Numéro
2025-02

CODE : EMPL868

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1. Scope of application

1.1. General

M.M.868 is a registered trademark of LAM PLAN SAS.

These operating instructions apply to

| Order-No. | Type and equipment | Issue |
|-----------|---------------------------------------|-------------|
| 080086810 | M.M.868 , light polymerization device | 2024-01-201 |

1.2. Designation and type of device

| Machine designation: | Machine type: | Valid from serial no: |
|-----------------------------|---------------|-----------------------|
| Light polymerization device | M.M.868 | 2024-01-201 |

1.3. EC Declaration of Conformity

We, LAM PLAN SAS, 7 rue des Jardins 74240 GAILLARD (France), hereby declare that the product described in section 1.2 complies with the relevant essential health and safety requirements of the EC directives and harmonized standards due to its design and construction and the version we have placed on the market.

Applied EU directives

Low Voltage Directive 2014/35/EU

EMC Directive 2014/30/EU

Applied harmonized standards:

DIN EN 61010-1:2020-03

DIN EN 61010-2-010:2022-12

DIN EN 61326-1:2022-11

This declaration loses its validity if the device is modified without our consent

2. Instructions for safe operation

2.1. Explanation of symbols

| Symbol | Wort mark | Explanation |
|---|--------------------|--|
|  | ATTENTION | Safety-relevant chapters and sections within the operating instructions. |
|  | NOTE | Instructions in the operating instructions for optimum use of the appliance. |
|  | ELECTRIC SHOCK | Caution: Electric shock. Danger to life if the instructions are not followed. |
|  | NETWORK SEPARATION | Risk of electric shock when opening the appliance. Pull out the mains plug before opening. |

2.2. Transport damage

Please check the appliance for transport damage on receipt of the delivery and report this to the transport company within 24 hours of delivery.

Never work with a damaged appliance.

2.3. Operator obligations

In addition to complying with the manufacturer's statutory regulations, the operator is obliged to ensure compliance with and implementation of the statutory obligations at the workplace, e.g. instruction obligation, occupational health and safety law and all other applicable regulations and laws.

For work on and with the device, the operator must prepare written instructions in a comprehensible form based on the operating instructions and the work to be carried out and communicate them in the language of the employees.

2.4. Operating instructions

Keep these operating instructions in a safe place so that you can refer to safety instructions and important operating information at a later date.

2.5. Safety instructions

The safety instructions relating to the protection of persons, the handling of the appliance and the material to be processed are largely dependent on the behavior of the persons working with the appliance.

Read the operating instructions carefully before commissioning and follow the instructions to avoid errors and resulting damage, in particular damage to health.

In addition to the information in these operating instructions, the applicable national laws, regulations and directives must be observed during installation and operation.



ELECTRIC SHOCK

The mains connection cable and plug must be checked for damage before use.
If there is any damage, the appliance must not be connected to the mains.

Work on the electronic equipment of the appliance may only be carried out by LAM PLAN Service and in a safe condition (de-energized). Only approved original spare parts and accessories may be used.

The use of other parts involves unknown risks and must be avoided under all circumstances.

The functionality and safety of the appliance is only guaranteed if the necessary inspections, maintenance, and repair work are carried out by LAM PLAN service partners or by personnel trained by us.

LAM PLAN SAS shall not be liable for any damage to the appliance resulting from improper repairs that were not carried out by LAM PLAN service partners or by personnel trained by us, or if no original spare parts/accessories were used when replacing parts.

3. Intended use

The M.M.868 light polymerization unit is used for curing light-curing embedding resins for material testing. The M.M.868 light-curing unit is manufactured according to the current state of the art and is safe to operate. Nevertheless, this device may present hazards if it is operated by inadequately trained personnel or if it is used improperly and not as intended.

The appliance must be operated by trained or qualified personnel who:

- have acquired their knowledge through professional training or instruction,
- are able to carry out the tasks they perform properly due to their qualifications,
- can recognize possible dangers when working with the appliance.



ATTENTION

If particular problems occur that are not covered in sufficient detail in these operating instructions, please contact the supplier for your own safety.

3.1. Work rules



ATTENTION

Put on the required personal protective equipment, e.g. hand, face and body protection, remove any jewelry beforehand.



ATTENTION

Do not use the device for the activities described below:

- Do not use the appliance drawer as a shelf.
- Do not use the appliance with a heavily soiled reflector chamber and/or closed housing ventilation holes or slots, as heat dissipation is then no longer guaranteed.

We recommend observing pause times of e.g. 30 s to 60 s between individual polymerizations of > 90 s to give the appliance the opportunity to cool down (fan running!)

4. Scope of delivery

On delivery of the appliance, check that all components are in perfect condition. If you have any complaints, please contact your supplier.

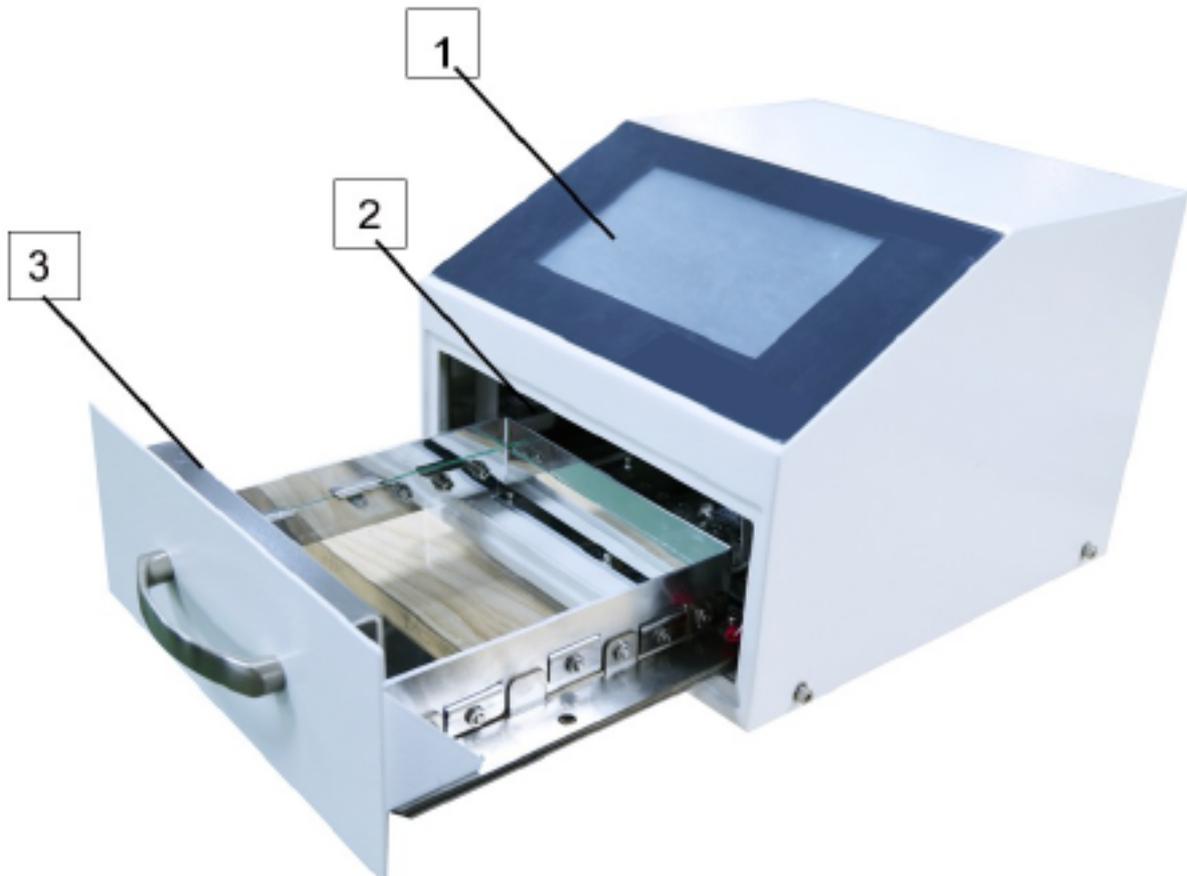
Delivery unit:

M.M.868
Mains cable (Europe)
Protective cover
Operating instructions

5. Design and function

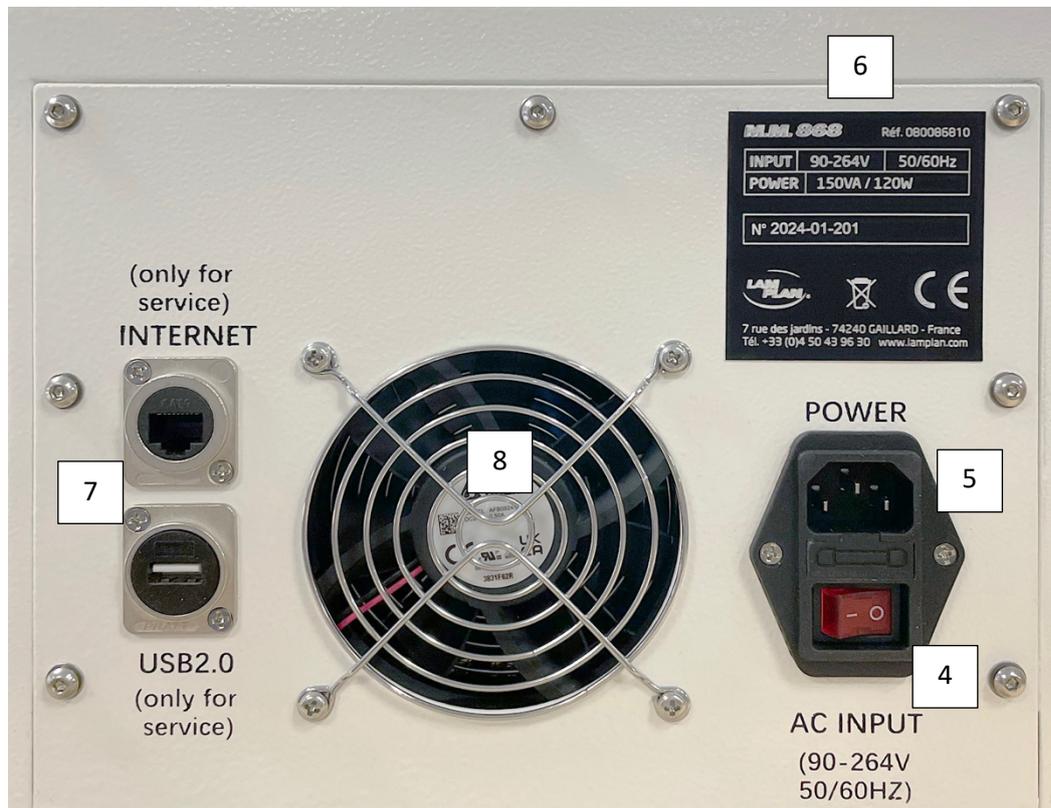
5.1. Front view Operating and display elements

- 1) Control panel
- 2) Reflector chamber
- 3) Drawer



5.2. Rear view

- 4) Mains switch
- 5) IEC plug with integrated fuses
- 6) Type plate
- 7) Service connections
- 8) Fan



6. Device description

The material to be polymerized is cured in the reflector chamber using LED lights.

The buttons and displays for setting and checking the device functions are located on the control panel.

The polymerization program is selected via the "Parameters" menu field, which can be used to call up preset programs.

The light source, intensity and irradiation time are set using the "SET" button. The intensity of the light sources is defined using the "low", "mid" and "high" buttons.

The minute and second settings can be made separately using the buttons for the polymerization time. Times of 1 - 99 minutes or 1 - 59 seconds can be selected.

The irradiation process begins by pressing the start button when the drawer is closed. The polymerization process does not start when the drawer is open.

A progress bar shows the polymerization time elapses.

A process that has been started accidentally can be ended by simply pressing the start button again.

When the time has elapsed, an acoustic signal sounds. The fan, which is automatically activated during operation, continues to run so that the interior of the device is continuously cooled.

To clean the reflector chamber, see Chapter 9 Cleaning.

The sample to be polymerized is placed in the drawer of the reflector chamber in suitable embedding molds (e.g. LAM PLAN embedding molds, item no. 66100232). The reflector chamber is designed in such a way that the light also reaches the areas not directly irradiated by reflection.

The size of the sample chamber is selected so that the number of samples, a complete sample holder of the polishing machine, can be polymerized in one cycle

7. Putting into operation

7.1. Transportation

Carefully transport the appliance horizontally. Avoid shocks!

For dimensions and weight, see chapter 13 Technical data.

7.2. Installation

The M.M.868 must be set up on a solid, non-flammable surface (laboratory bench, base frame) in such a way that it is level and secure. The ambient temperature may be up to 45°C (113°F).

Installation location:

Table with a load capacity of at least 15 kg.

Table surface (W x H x D): approx. 300 x 300 x 360 mm.



ATTENTION

The following instructions must be observed:

- The rear of the appliance must be at least 10 cm away from the wall so as not to obstruct the air supply of the built-in fan. If the air required for cooling cannot circulate freely around the device, there is a risk of overheating. The service life or light output may be impaired.
- The device must be set up so that the air on the bottom side can blow off freely all around.

7.3. Function test



ATTENTION

Only parts of the appliance that are in perfect condition will guarantee the proper functioning of the appliance. Thoroughly check the appliance parts before commissioning!

Make sure that:

- all device components are undamaged,
- no residues or soiling are present,
- defective parts have been replaced,
- there is no damage to the plug or the insulation of the mains cable,
- the mains plug must fit the socket

7.4. Mains connection

An IEC plug connection with integrated mains fuses is located on the back of the appliance



ATTENTION

After installation, the mains plug must be accessible for disconnection from the mains supply.

Mains cable (Europe) included in scope of delivery

Use in Europe: Voltage 230 V

Use in USA / Japan Voltage: USA: 115 V / Japan: 100 V



ELECTRIC SHOCK

Moisture and humidity can lead to a short circuit.

Only operate the device in dry areas

7.5. Device testing

The appliance test must be carried out by the operator at regular intervals (e.g. weekly).

7.5.1. Control panel

Is the control panel in perfect condition?

Switch on the device, the display shows the start screen with the device name and an invitation to operate it. After touching the display, the control panel appears.

7.5.2. Drawer / reflector chamber

Is the reflector chamber in perfect (clean) condition?

Check that the limit switches are functioning correctly. Start the polymerization cycle and open the drawer while the polymerization process is running. The polymerization process must be automatically interrupted immediately. If the ongoing polymerization is not interrupted, contact Service immediately (see chapter 14 Service).

The appliance must not be operated in this case.



ATTENTION

The appliance must not be operated if one of the the above conditions have not been met

8. Operating

8.1. Working with the device

Connect to the mains and switch on the device.



NOTE

Make sure that translucent embedding molds (e.g. LAM PLAN embedding molds, item no. 66100232) are used for polymerization

Open the drawer of the reflector chamber, place the prepared sample on the glass pane. Close the drawer. Position the object preferably in the center of the reflector chamber.

Start the polymerization cycle. Remove the polymerized sample and clean the reflector chamber if necessary.

The correct polymerization time depends on the material. It is essential to observe the instructions for use for the embedding resin used.

The fan that starts at the beginning of polymerization is still running. To preserve the service life of the appliance, leave it switched on until the fan switches off.



NOTE

If a polymerization cycle is started incorrectly by mistake, the process can be ended by pressing the start button.

8.2. Programming the polymerization parameters

Parameter Setting

parameter 1

Language

Name: 111

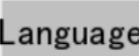
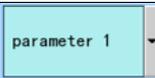
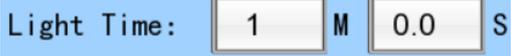
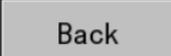
Choose Band: 395 450 395+450

395 Power: LOW MID HIGH

450 Power: LOW MID HIGH

Light Time: 1 M 0.0 S

Save & Back Back

| | |
|---|--|
| Press the Set button in the start menu to switch to the “Parameter settings” menu |  |
| Press the “Language” button to select the appropriate language for the start and parameter menu |  |
| Select the desired program position from the “Parameter” pull-down menu |  |
| By pressing the “Name” field, the program name is set using the keypad that appears. |  |
| To set the light source(s), select the corresponding wavelength in the “Band setting” |  |
| To set the intensity, select the corresponding strength in the “Power setting” |  |
| Set the desired irradiation time by pressing the minutes or seconds button on the keypad |  |
| Pressing the “Back” button automatically switches to the start menu without saving |  |
| Press the “Save & Back” button to save the created program and switch to the start menu |  |

Parameters for LAM PLAN mounting resins:

| Mounting resin | Wavelength NM | Intensity | Time |
|----------------|---------------|-----------|----------|
| 601.2 | 450 | M | 2x5 min* |
| | 450 | M | 10 min |
| FLASH 611 | 450 + 395 | L | 90 sec |

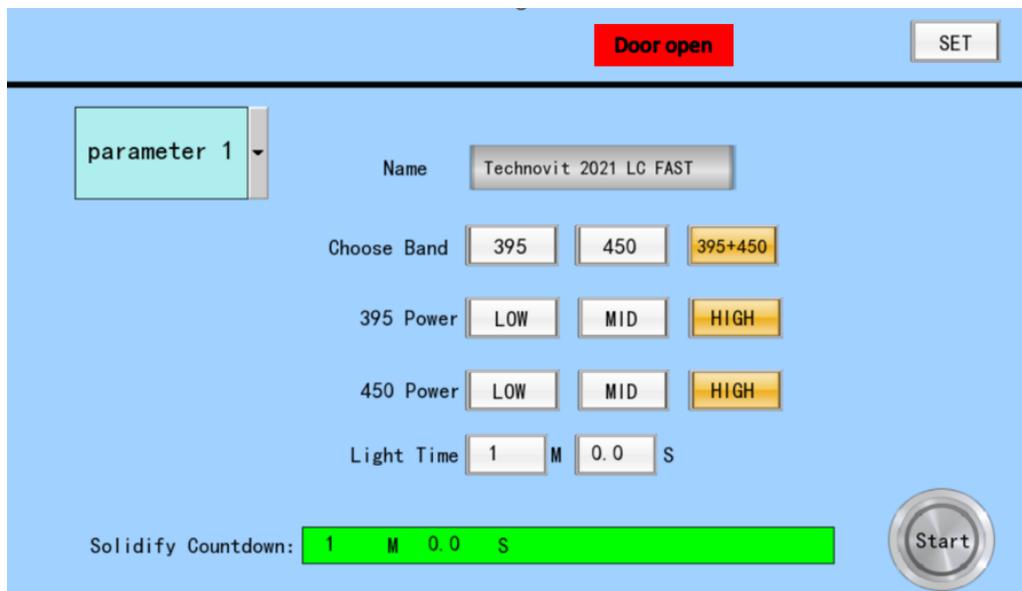
* Second polymerization cycle incl. 601.2 covering VARNISH.

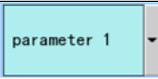
8.3. Starting the polymerization process



NOTE

If not in use, the display switches to standby mode after approx. 10 minutes (start screen appears).



| | |
|--|--|
| <p>Open the drawer and place the sample(s) on the glass plate of the reflector chamber, close the drawer. If the drawer is not closed correctly, the warning "Door open" appears</p> |  |
| <p>Select the desired polymerization program in the "Parameters" pull-down menu</p> |  |
| <p>The polymerization process is started by pressing the "Start" button</p> |  |
| <p>The countdown starts and is visible in the progress bar on the display. An acoustic signal sounds at the end of the process</p> |  |
| <p>Once the polymerization program has finished, the sample can be removed from the appliance. To do this, open the drawer of the reflector chamber.</p> | |



NOTE

The set time program is interrupted by opening the drawer. After closing the drawer, the time program continues.
By pressing the "Start/Stop" button, the program is canceled and can be restarted from the beginning.

**ATTENTION**

Due to the reaction of the mounting resin, the sample can be very hot immediately after polymerization, depending on the size and material used!

Quantities and sample sizes:

The following quantities of embedding molds can be cured simultaneously

Ø 50 mm = 4 pieces

Ø 40 mm = 6 pieces

Ø 30 mm = 12 pieces

Ø 25 mm = 12 pieces

8.4. Errors and rectification**MAINS DISCONNECTION**

Danger to life!

Disconnect the mains plug before working on the appliance.

**ELECTRIC SHOCK**

High voltages are life-threatening when touched.

| Error | Cause | Rectification |
|-------------------------------|-----------------------|--|
| Device cannot be switched on | Device not connected | Establish mains connection |
| | Power cable defective | Replace mains cable |
| Polymerization does not start | Drawer open | Close drawer correctly. Start polymerization again |
| Fan does not start | Fan defective | Replace fan; put appliance out of operation. Set service |

9. Cleaning**9.1. Safety Instructions****ELECTRIC SHOCK**

There is a risk of electric shock if moisture penetrates connected devices.

Note the following:

- Switch off the appliance and disconnect the mains plug before cleaning.
- Dismantling the housing is not part of the operator's maintenance work.
- Only use mild cleaning agents and alcohol-based disinfectants.
- Do not use alkaline solutions, corrosive or abrasive substances, methanol, amines, technical solvents, organic compounds, methyl methacrylate and methacrylic acid methyl ester.

**NOTE**

Scratches or dirt in the reflector chamber reduce the efficiency of the irradiation and reduce the performance.

Note the following:

- When cleaning, take care to avoid scratches.
- Do not use pointed, sharp or abrasive objects for cleaning.
- Remove soiling completely but gently.

9.2. Preparation of the device components**9.2.1. Housing**

Cleaning: Wipe with a mild alcohol-based cleaning agent.

**MAINS DISCONNECTION**

Danger to life!

Disconnect the mains plug before working on the appliance.

**ELECTRIC SHOCK**

High voltages are life-threatening when touched.

9.2.2. Reflector chamber

Cleaning: If dirty, clean at least once a week with a mild detergent or washing-up liquid.

**NOTE**

Do not allow moisture to get inside the appliance while working.

10. Maintenance / Repair**MAINS DISCONNECTION**

Disconnect the mains plug before working on the appliance.

**ELECTRIC SHOCK**

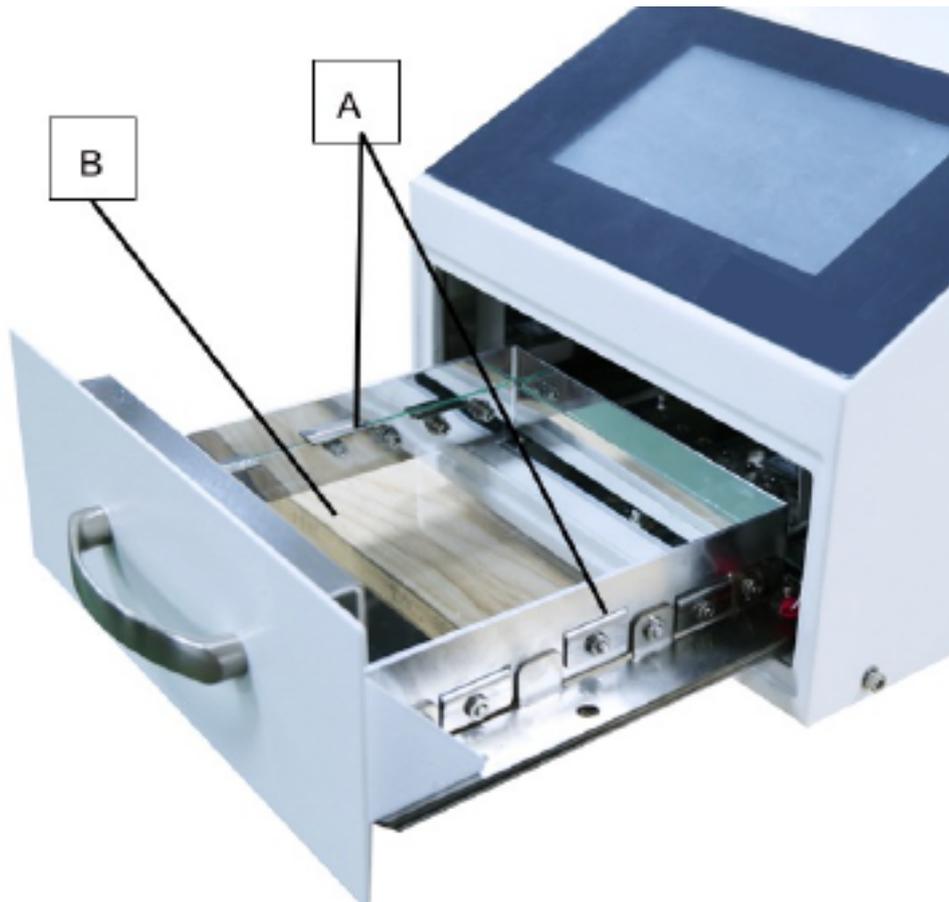
High voltages are life-threatening when touched. Danger to life if the instructions are not followed.

The device is not designed for maintenance and repair by the operator. Any necessary maintenance and repair work may only be carried out by LAM PLAN SAS, its service partners or by personnel trained by us. Exceptions are service work, replacing the glass pane and the device fuse.

10.1. Replacing the glass pane

If the glass pane in the drawer is dirty or damaged, it can be replaced. Proceed as follows:

- Open the drawer, loosen the two M4 screws and remove the brackets (A).
- Remove the glass pane (B) upwards out of the drawer.
- Insert the new glass pane from above.
- Reinsert the brackets and secure them with the M4 screws.



10.2. Replacing the device fuse

Replace the device fuse with the same type: 2 x T 6,3 A (available from specialist retailers). To do this, carry out the following steps:

- Open the fuse compartment above the power plug connection (back of the device).
- Push the fuse out upwards.
- Insert a new fuse from above.
- Close the fuse compartment.



11. Disposal

In the manufacture of the M.M.868 light polymerization unit, materials are used that are recyclable and do not pose any special or unusual hazards during disposal. LAM PLAN SAS is of course prepared to take back used devices over and above the legal obligations. The operating life of the device is designed for approx. 10 years.

12. Disposal of old appliances according to WEEE

Electrical and Electronic Equipment Act (EEEA)

This law sets out the requirements for product responsibility in accordance with Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment. It primarily aims to prevent waste from electrical and electronic equipment and also to promote the reuse, recycling and other forms of recovery of such waste in order to reduce the amount of waste to be disposed of and to reduce the input of pollutants from electrical and electronic equipment into waste.

13. Technical data

13.1. Mains connection

| | |
|--|--------------------|
| Nominal voltage | 86 V - 264 V |
| Rated frequency | 47-63 Hz |
| Fuse rating | 2 x T 6,3 A |
| Power supply | 100 W |
| Power consumption | 325 VA |
| Dimensions device (W x H x D) | 250*306*222mm |
| Reflector chamber dimensions (W x H x D) | 174*174*35mm |
| Weight | 15 kg |
| Protection class | Protection class I |
| Light source | LED |
| Emitted wavelength | 395 + 450 nm |

13.2. Transport and storage conditions

| | |
|-------------------|---------------------------------|
| Temperature | -15°C bis +45°C (5°F bis 113°F) |
| Relative humidity | < 100% Relative humidity |

13.3. Operating conditions

| | |
|-------------|---|
| Temperature | 5°C to 45°C (41°F bis 113°F) |
| Humidity | 80% rel. humidity to 31°C (88°F) 50% rel. humidity at 45°C (113°F) |

13.4. Type plate



14. Service

We are happy to answer your questions, comments, and suggestions. Contact persons and further information can be found directly on our homepage www.lamplan.com

15. Document history

Issue 2025-02 replaces 2024-09 First issue M.M.868.

16. Contact Address

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