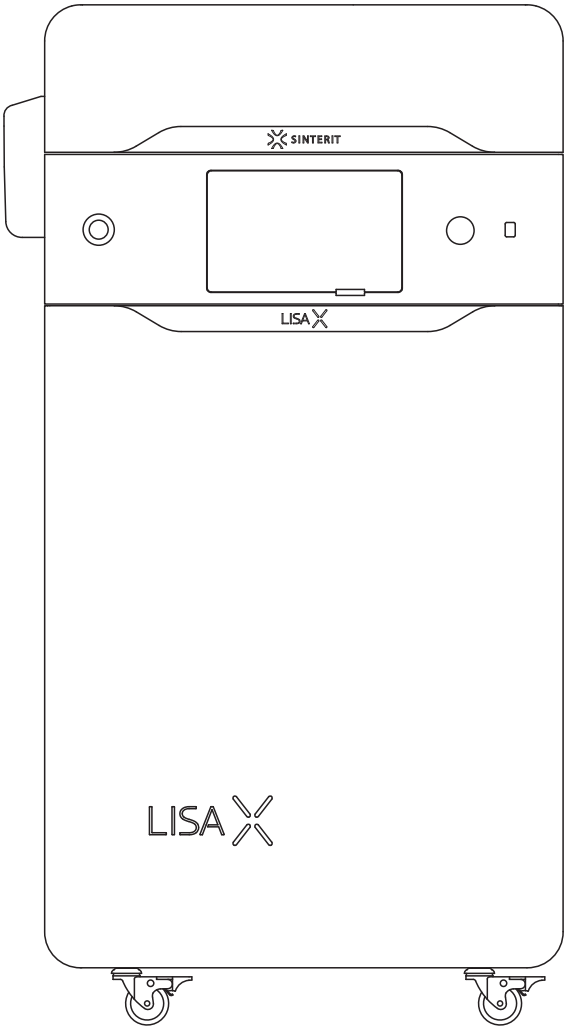
SINTERIT



LISA X

SLS 3D printer

Translation of the original short manual

Please read the full instruction manual before putting the device into service.

Version 01/2022

Table of contents

The short manual provides only a basic overview of the device and its general use. It will guide you throughout the entire printing process. For detailed information and to learn more about specific features of your printer, please view the full manual at www.sinterit.com/support-page/. Sinterit disclaims any liability resulting from the lack of knowledge provided in the full manual.

Listed below are the conventional symbols used throughout the guide and basic safety rules for working with the machine. They indicate warnings or carry important notices, so as to protect the user, any bystanders and objects in the vicinity. They also provide the basic guidelines for proper and safe operation of the device.

WARNING!
An inevitably dangerous situation, potentially resulting in bodily harm or even death. The initiation, refusal or neglect to carry out the specified procedure, or carrying it out in a careless or negligent manner, may cause potential injury to the user or any bystanders.

ATTENTION!
The initiation, refusal or neglect to carry out the specified procedure, or carrying it out in a careless or negligent manner, may cause property damage and/or injury to person(s) operating the device and/or those located in its vicinity.

DANGER!
Risk of electric shock. An inevitably dangerous situation, potentially resulting in severe burns or even death. Before operating any electric device, it is important to understand the dangers of electricity and the proper procedures to mitigate them, as well as the steps necessary to perform in case of a related emergency.

WARNING!
Pressurized gas! Danger of asphyxiation!
The gas canister could potentially become unsealed – the intert gas is a simple asphyxiant (displaces oxygen from the air). Low oxygen levels may result in the loss of consciousness and ultimately death, if not correctly mitigated. The immediate symptoms include shallow or labored breathing, migraines and vertigo; in critical concentrations, the afflicted may experience nausea, weakness, long-term loss of conciousness and, ultimately, complete asphyxiation.

ATTENTION!
IR laser radiation. The laser emits infrared (IR) light, which is not visible to the naked eye. It is important to avoid skin and eye contact. Direct eye exposure to the laser beam may result in deterioration of eyesight or even blindness. It is forbidden to observe the beam with optical instruments (i.e. looking glass, lenses). Additionally, direct skin exposure might result in burns.

ATTENTION!
High temperature – do not touch! Contact with the heating elements can result in severe burns.

	**ATTENTION!** Mind the moving parts, which could potentially crush limbs.
	**ATTENTION!** Mind the sharp edges, which could result in cuts, especially to the hands.
	**ATTENTION!** Beware of high intensity light.
 	**DANGER!** Fire and/or explosion hazard! Mitigate the risk of combustion; the powder dust is extremely flammable!
	**ATTENTION!** Risk of electric shock. The device is equipped with a ground. It is necessary to observe the precautions described in the manual as well as all the safety warnings and notices posted on the device itself.
	**STOP!** The described action is strictly forbidden.
  	**ATTENTION!** It is necessary to wear personal protection: clothing, eyewear, facemask and gloves. It is absolutely crucial while performing any work with the powder, in order to prevent potential injuries.
	**ATTENTION!** Antistatic clothing and footwear required. They are absolutely necessary while working with powder.
	**IMPORTANT!** Information necessary to correctly perform the described task.
	**IMPORTANT!** Before attempting the described action, please consult the instruction manual.

1. Printer overview

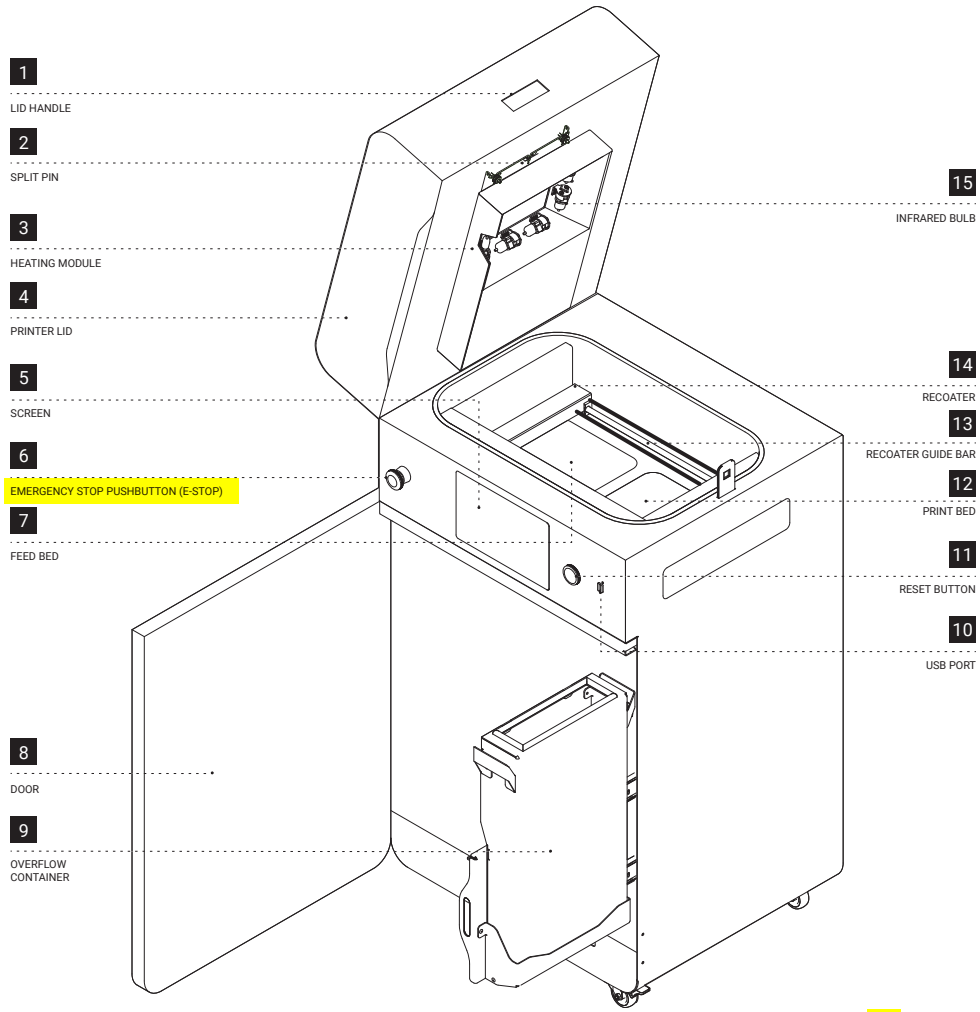


Fig. 1.1 View of the front of the printer, heating module, print chamber, and overflow bin.

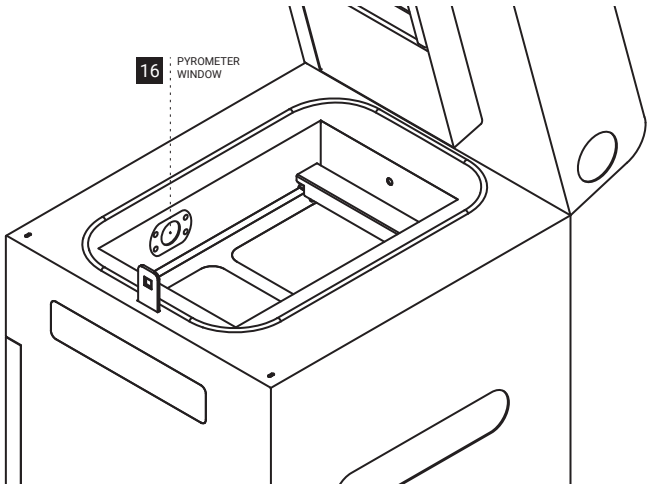
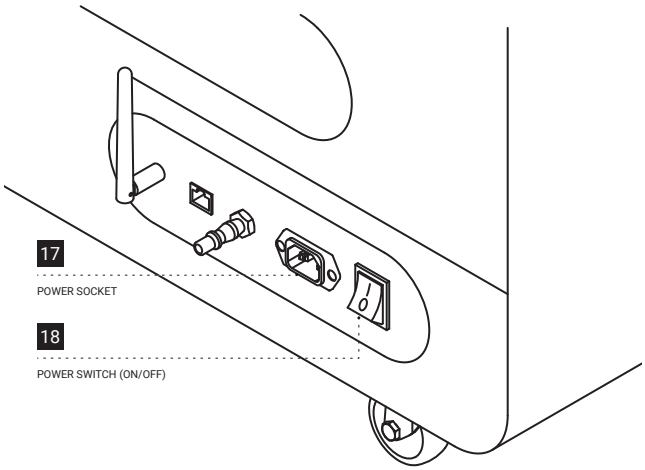


Fig. 1.2 View of the pyrometer window.



1.3 View of the back of the printer.

2. Preparing to print

2.1 STARTING THE PRINTER

1. Connect the printer to power (fig. 2.1). Power socket is located on the back of the printer.
2. Flip the power button on the back of the printer to the **I** position.

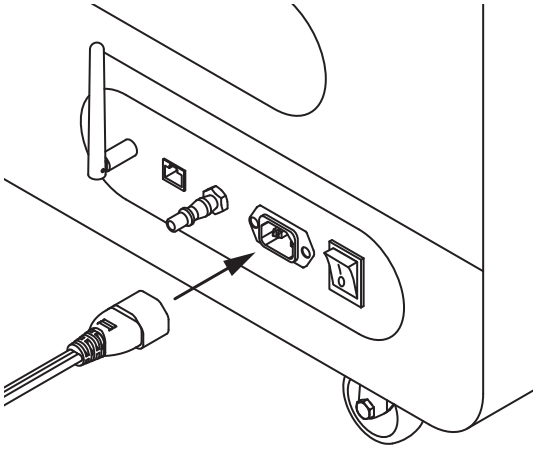


Fig. 2.1 Connecting the power cord to the power socket.

3. Make sure that the **E-STOP** button is released. If not, twist it clockwise up to the stop and release (fig. 2.2).

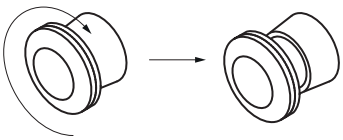


Fig. 2.2 Releasing the E-STOP button.

4. In a moment, the main menu should appear on the printer screen.

ATTENTION!
While preparing the printer for use, it is necessary to read and acknowledge any messages on the screen. Disregarding or skipping any crucial steps of the process can negatively impact the quality of printouts or damage the printer.

2.2 CHOOSING THE FILE TO PRINT

1. In order to start printing, from the main menu choose **NEW PRINT** ▶ and press ⊕ **ADD NEW PRINT JOB**.
2. Choose the file from the list – **NEW PRINT JOB** or repeat a **RECENT PRINT JOB**.
3. The following screen displays some basic information about the processed file (**PRINT JOB**) as well as the current status of the printer (**PRINTER STATUS**). If at this point you want to instead choose another file to print, choose **CHANGE PRINT JOB**.

IMPORTANT!
In case any components of the printer should require maintenance or replacement, a corresponding message will appear on the screen.

Press **START NEW PRINT** to advance to the following step.

2.3 FILLING THE PRINTER WITH POWDER

1. Slide the **UNLOCK LID** button to release the electrolock and allow the print chamber to be opened.

IMPORTANT!
After 10 seconds the electrolock will activate and it will no longer be possible to lift the lid. If you still want to open the printer, slide the **UNLOCK LID** button again on the printer screen.

2. Push on the lid and pull it up using the lid handle (fig. 2.3).

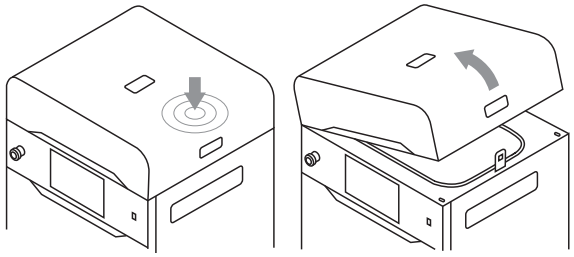


Fig. 2.3 Lifting the printer lid.

3. Make sure the print chamber is free of any miscellaneous items, which the recoater could catch on.
4. Press **AUTO HOME** to begin homing the Feed Bed and Print Bed positions.
5. Once the homing process is finished, fill the Feed Bed up with the desired powder. You may use the powder funnel provided in the Dedicated Powder Tools. Afterwards press **DONE**.

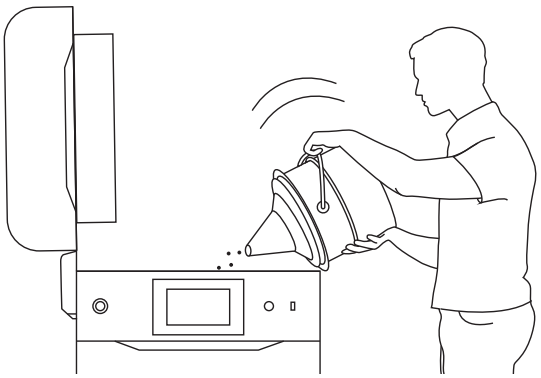


Fig. 2.4 Filling the print chamber with powder using a funnel.

IMPORTANT!
Add a little more powder than fits in the Feed Bed.

IMPORTANT!
The information which powder to use has been displayed on the printer screen as well as in the Sinterit Studio software end report.

6. Compress the powder using the metal spatula provided in Dedicated Powder Tools. This will release any residual air trapped in the Feed Bed during the pouring of the powder. Afterwards press **DONE**.
7. Remove any powder spilled directly under the guide bars. You may use the brushes and spatulas provided in Dedicated Powder Tools. Afterwards press **DONE**.
8. Choose **START LEVELING** to begin leveling the powder surface.

IMPORTANT!
During the powder leveling process you can scrape the excess powder from under the guides with a plastic spatula, for example from the Dedicated Powder Tools set.

9. You should see a smooth powder surface in the print chamber. Once the surface is sufficiently level, choose **STOP LEVELING**.
10. Press **DONE** to advance to the following step.

2.4 PREPARING THE PRINT CHAMBER

1. Delicately wipe the pyrometer window with a wipe soaked in 2% salicylic spirits (ethanol solution) or another ethanol-based cleaning solution. You may also use cleaning wipes provided in Dedicated Powder Tools.
2. Wipe the pyrometer window again with a dry cotton cloth, in order to remove any alcohol residue. Afterwards press **DONE**.
3. Wipe the recoater guide bar with a wipe soaked in 2% salicylic spirits (ethanol solution) or another ethanol-based cleaning solution. You may also use cleaning wipes provided in Dedicated Powder Tools.
4. Wipe the recoater guide bar again with a dry cotton cloth, in order to remove any alcohol residue. Afterwards press **DONE.**
5. Apply silicone oil (available in Dedicated Powder Tools) to the recoater guide bar. A few drops along the whole length is enough. Afterwards press **DONE**.
6. Make sure no miscellaneous items (i.e. spatulas) remain in the print chamber, then close the lid. Afterwards press **DONE**.

2.5 FINAL STEPS BEFORE PRINTING

1. Press the **RESET** button on the printer itself, in order to engage the safety mechanism.
2. Choose **START PRINT** to begin printing.

3. Removing and cleaning the printout

1. Once the screen displays a message saying **FINISHED** the printing process is over. Choose **REMOVE PRINTOUT** to retrieve it from the print chamber.
2. After the print is finished, the screen may show a message saying **MAINTENANCE TIME**. It contains information on required maintenance to certain components of the printer in the near future. For more information consult the full instruction manual, section *13. Maintenance*. Press **GOT IT**. If the message hasn't appeared, it means that at present no components require any maintenance.
3. Press the **UNLOCK LID** button to release the electrolock and allow the print chamber to be opened

IMPORTANT!
After 10 seconds the lock will re-engage and it will no longer be possible to lift the lid. If you still want to open the printer lid, press the **UNLOCK LID** button again on the screen.

4. Push on the lid and pull it up using the handle (fig. 3.1).

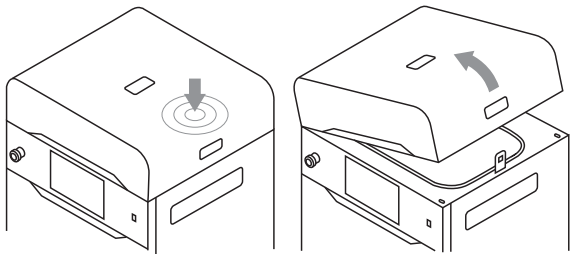


Fig. 3.1 Lifting the printer lid

5. Place the folded IO BOX inside the print chamber. Make sure its elements are arranged like in the picture (fig. 3.2.)

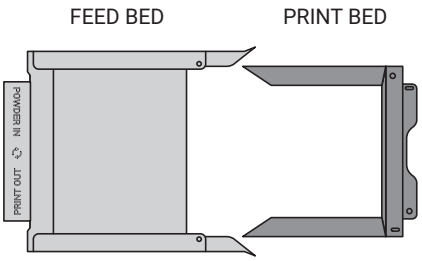


Fig. 3.2 The proper arrangement of the IO BOX, allowing the user to remove the finished printout.

ATTENTION!
While placing the IO BOX in the chamber, make sure you do not accidentally damage its components.

6. Unfold the IO BOX elements as much as possible. Inside the IO BOX you should see a covered Feed Bed and an uncovered Print Bed.
7. Choose **REMOVE PRINTOUT** and wait until the contents of the Print Bed (the cake) are ejected.
8. Join the IO BOX elements together.
9. Carry the IO BOX and its contents onto the foldable tray from Dedicated Powder Tools ❶ or on the PHS worktop ❷ then press **DONE** on the screen.

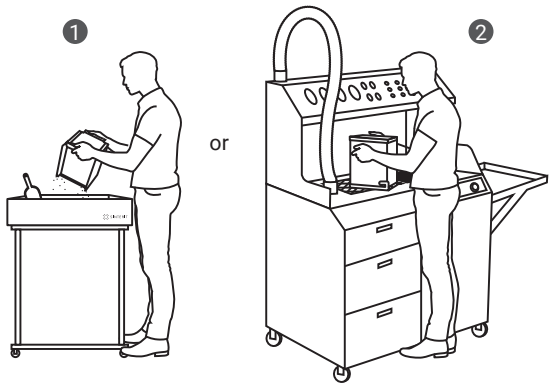


Fig. 3.3 Moving the IO BOX to the foldable tray ❶ or to the PHS worktop ❷ to clean the printout.

10. Clean the printout from unsintered powder. You may use the brushes and the probe provided in Dedicated Powder Tools.

4. Cleaning the printer

IMPORTANT!
The SLS powders are hygroscopic (draw moisture out from the air). The print chamber and the overflow container are not 100% airtight. Leaving the powder inside of the printer may cause it to become wet and lose its intended properties.

1. Press **YES, I DO**, to start cleaning the printer.
2. Make sure no miscellaneous items remain in the print chamber. Afterwards press **AUTO HOME** to begin homing the Feed Bed and Print Bed positions.
3. Collect the remaining powder in the print chamber with the PHS or ATEX Vacuum Cleaner hose. Afterwards press **DONE**.

DANGER!
The vacuum cleaner used to collect the powder must be suitable for handling combustible dust. Sinterit recommends the ATEX Vacuum Cleaner available in the offer.

4. Press the arrow buttons to the left and right to move the recoater and collect the remaining powder underneath.
5. Once the print chamber is clean, choose **DONE**.
6. Press **OPEN AND UNLOCK**, to unlock the overflow container.

IMPORTANT!
After 10 seconds the lock will re-engage and it will no longer be possible to open the overflow door. If you still want to slide the overflow bin out, press the **UNLOCK OVERFLOW** button again back on the LCD screen.

7. Open the overflow door and slide out the drawers. (fig. 4.1).

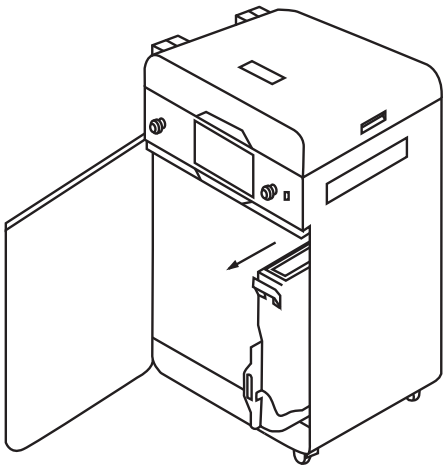


Fig. 4.1 Sliding out the overflow container.

8. Take the overflow container from its drawers and transfer its contents into a metal bucket or onto the PHS.
9. Put the overflow container back in its drawers.

IMPORTANT!
Make sure the overflow container is oriented correctly once you put it back. Pay attention to the markings on the bin.

10. Slide the **UNLOCK OVERFLOW** button to the **UNLOCKED** position, to release the lock and slide the drawer back into the printer.

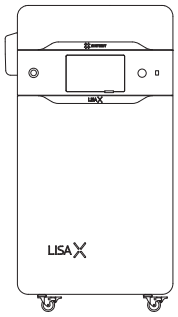
ATTENTION!
Attempting to slide the overflow container back into the printer without unlocking the safety mechanism can damage it

11. Close the overflow door and press **DONE**.
12. If you want to learn how to refresh the powder and what exact mix to use, choose **SHOW REFRESH INFO**. If you wish to instead do that another time, choose **LATER**.

5. Technical support

In case of any questions or issues, please don't hesitate to contact the after-sales support:
- e-mail: support@sinterit.com
- phone: +48 570 702 886

The full list of resellers and technical support in select countries can be found at www.sinterit.com/contact.



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