

zortrax

3D Printer User Guide

Inkspire 2

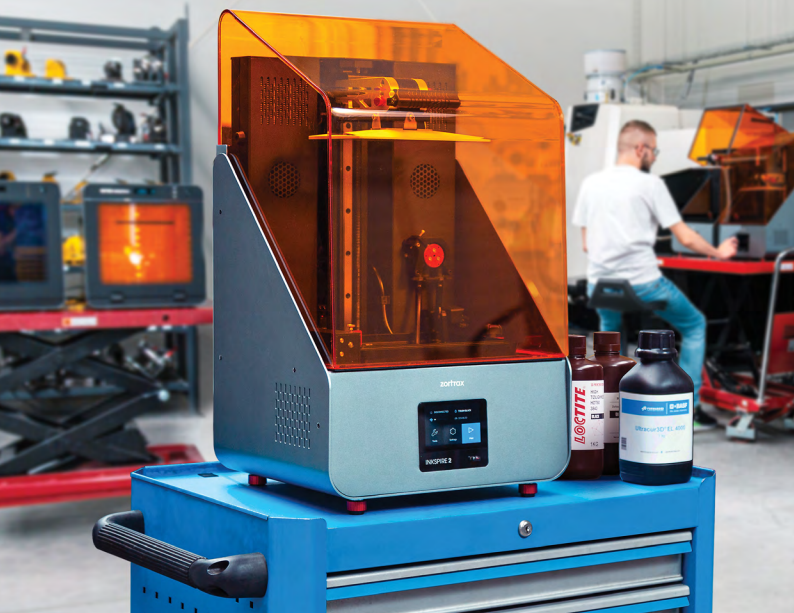


Table of contents

| | |
|---|----|
| Introduction | 3 |
| General Safety Information | 3 |
| Learn More About the Zortrax Inkspire 2 | 7 |
| How does the Zortrax Inkspire work? | 8 |
| What's in the Box | 9 |
| Main Components | 10 |
| Zortrax 3D Printing Technology Glossary | 12 |
| First Use Preparation | 15 |
| Connecting the printer to a network | 22 |
| Firmware Update | 26 |
| Navigating through the Menu | 27 |
| Changing the Resin | 29 |
| Platform Calibration | 31 |
| Z-SUITE Installation | 33 |
| How to Start, Remove and Post-Process a Print | 34 |
| Available Materials | 40 |
| Basic Maintenance and Service Work | 41 |
| Support and Troubleshooting | 45 |
| Error Messages | 47 |
| Specification | 50 |
| Recycling | 52 |
| Certification | 52 |

Introduction

Read this User Guide carefully and thoroughly before operating the Zortrax Inkspire 2 for the first time. The User Guide includes basic information about the 3D printer, safety and protection guidelines as well as advice on preparing the machine for the first printing process and basic maintenance work. Ignorance and non-compliance with these instructions may result in property damage, injuries, device failures or lower quality of 3D prints. It is also necessary to ensure that every 3D printer user knows, fully understands and follows the instructions provided in this User Guide.

The Manufacturer makes every effort to ensure that Zortrax products are safe in transportation, installation, usage, storage and disposal. However, given the lack of direct and indirect control over the device and a number of other factors influencing the device, the Manufacturer is not responsible for damage, injuries, failures, and costs resulting from improper transportation, installation, usage, storage, and disposal.

Furthermore, the users should take into consideration the risk of possible damage of the device resulting from defects in material and workmanship.

The users are responsible for qualifying and determining the intended use of 3D printed models. The Manufacturer takes no responsibility for any use of printed objects, especially when those objects constitute a part of safety devices or strictly regulated by specific rules medical, military or space science equipment.

Due to the size and specificity, the Zortrax Inkspire 2 is not intended for use by minors and by people with reduced manual, motor and psychomotor skills. The Manufacturer recommends providing assistance and guidance to people with disabilities and older adults who wish to operate the printer.

General Safety Information

This User Guide contains important safety directions that should be followed during installation and operation of the Zortrax Inkspire 2. It also mentions situations which require special attention and includes warnings against negligence and misuse that could cause damage or injuries.

Always read the safety data sheets available at: <https://zortrax.com/resins/>. They are a source of basic information and safety procedures for the materials you bought. It is essential to regularly update the firmware to avoid any kind of failures.

Visit our website: <https://zortrax.com/> to learn about the latest news and updates.

Printing process with the Zortrax Inkspire 2 involves using synthetic resin which in a liquid form is toxic and may cause allergic reactions. Therefore, you must protect your skin and eyes when using the printer by wearing safety gloves and glasses. Provide proper ventilation in the print room.

It is also extremely important to avoid spilling the resin on the printer and its surroundings while operating the printer, filling the vat and removing prints from the platform. Ensure that the printer is leveled and placed on a stable surface. Do not open the UV cover during the printing process.

Do not leave the machine unattended during the printing process - check it periodically for proper functioning in order to avoid potential accidents or breakdowns. Do not ignore warnings and notifications displayed on the screen. Turn off the printer and empty the resin vat once the printing process is finished.

Monitor your device for wear and tear regularly. Contact our Support Center via the support form at: <https://support.zortrax.com/support-form/> for assistance while replacing worn or broken parts.

Keep the printer away from heat sources, flammable materials, equipment emitting radiation, sources of fire, humidity, water and other liquids. To prevent any inadvertent use, keep the device out of reach of children and animals. It is forbidden to drop or shake the printer as it may cause breakdowns. The equipment is not intended for use in a potentially explosive environment.

The Manufacturer strongly recommends setting up a special room dedicated only to 3D printing. The room should be as free of daylight as possible and properly ventilated. It is important to avoid situations in which liquid resin is exposed to daylight.

Workplace Health and Safety

All service and maintenance activities as well as device operation and maintenance require using safety gloves and glasses included in the Starter Kit. It is also advisable to wear protective clothing.

Keep the workplace clean. Containers with resin should be tightly closed and kept in a dark place.

The device should be configured according to its intended purpose. Improper configuration may cause defective operation which may lead to damage of the device.

Food and beverages should be kept away from both the 3D printer and the 3D printed objects. Do not put any objects under the UV cover.

While operating the Zortrax Inkspire 2, all measures regarding health and safety that are provided in this User Guide as well as in separate regulations should be taken into account.

If the device begins to operate in an unidentified way, safely unplug it from the power source and immediately contact the Manufacturer through the support form at: <http://support.zortrax.com/support-form/>.

Electrical Safety

Zortrax 3D printers have been tested for compliance with Low Voltage Directive. In order to ensure the highest safety standards, including protection against short circuit, overload, overvoltage and printer overheating, do not attempt to modify the printer and do not use electronic replacement parts other than those recommended by the Manufacturer.

Replace electronic units according to the instructions and be particularly careful while using the tools supplied with the printer.

Before plugging the power cable into the outlet, make sure that the power supply voltage in the outlet matches the required value provided on the nameplate at the back of the printer. Avoid overloading the outlet with too many devices.

The printer must be well-grounded. Always make sure that the ground complies with local and national regulations.

Use only the original power cable supplied with the printer. Do not damage, cut or repair the cable. A damaged cable should be immediately replaced with a new one. The cable should be used according to its intended purpose and should be protected from heat, oils, sharp edges and moving components of the device. A damaged cable increases the risk of an electric shock.

Do not expose the device to rain and humidity. While filling the vat with resin, be careful not to spill the resin outside the vat. Liquid that enters the inside of the device increases the risk of an electric shock.

All maintenance and repair work should be carried out while the device is off and unplugged. Modifications such as soldering of electronic subunits are forbidden.

Mechanical Safety

The Zortrax Inkspire 2 has movable components, such as the build platform and the Z axis. Therefore, it is forbidden to reach into the printer or put anything inside the printer when it is running, about to start running or at rest. This may lead to serious injuries or damage.

Tools and accessories delivered with the printer should be used with special care only for intended purposes. Improper use may cause serious injuries.

While following post-processing procedures, wear safety gloves and glasses to avoid injuries that may be caused by sharp edges and fragile elements of models.

A finished print must be removed from the platform outside the printer, after both the platform and the model have been cleaned from uncured resin in a liquid detergent.

To avoid injuries, be particularly careful while removing prints from the platform. Always wear gloves and glasses.

The FEP film that is installed in the resin vat is very thin and fragile, therefore, special care should be taken when cleaning, installing and disassembling the vat.

Risk of Burns

There is no risk of burns as all components working in high temperatures are enclosed and protected from being touched.

Constructional modifications of the printer's operating temperature are not permitted as it may cause serious injuries or bring damage to the device.

Safe Storage and Transport Guidance

Zortrax devices must be stored between 0 and 35° C [32 - 95° F]. The storage space should be free of moisture and other extreme conditions.

Transport instructions:

When stacking several devices on a pallet, follow the instructions provided on the packaging. Once device may weigh more than 28.3 kg [62.4 lb]. It is therefore advisable to provide safe pallet storage but not higher than 1.7 m [5'7"]. It should be noted that the packages must not project beyond the outline of the pallet. Packages stacked on the pallet should be then bound together and wrapped in foil. The pallet prepared as above can be then forwarded to the shipping company.

Pallet stacking and destacking should be carried out by two people. The package with the device should be lifted or moved using special handles.

Electromagnetic Compatibility (EMC)

The Zortrax printer complies with Part 15 of the FCC rules. Its operation is subject to the following two conditions: this device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

The printer generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the following User Guide, may cause harmful interference to radio communications. Operation of this device in a residential area is likely to cause harmful interference, in which case the user will be required to eliminate the interference at his own expense.

Learn More About the Zortrax Inkspire 2

The Zortrax Inkspire 2 is a 3D printer which, together with Z-SUITE, dedicated resins, and post-processing devices — Zortrax Cleaning Station and Zortrax Curing Station, constitutes the whole 3D printing ecosystem. The printer makes it possible to turn digital, three-dimensional projects into reality using the UV LCD technology which relies on curing liquid photopolymer layer after layer. The UV LCD technology involves projecting an image of a layer on the transparent underside of the vat with liquid resin and curing the layer using backlight from an integrated LED panel. After each layer is cured, the panel pauses to operate. During the pause, the layer solidifies and the platform rises and lowers itself so the resin is equally distributed in the vat. The printer is equipped with an LCD screen which is responsible for projecting successive layers and masking the UV light. Thanks to that, the resin that is outside the image of a layer is not cured and can be used to print the rest of the model. The printer allows users to print multiple parts at the same time without affecting the accuracy and printing speed. Once the printing process is finished, the model has to be post-processed in two steps. The first step involves cleaning the print from residues of uncured resin in a liquid detergent, whereas the second step involves additional UV curing so that the object acquires its intended properties. The Zortrax Inkspire 2 can be used for creating prototypes and concept models in engineering, as well as for creative applications, such as figurines and gadgets.

How does the Zortrax Inkspire 2 work?

Everything begins with preparing a model. The work on the project can start in any program which creates 3D models and generates .stl, .obj, .3mf, or .dxf files. These are the standard file formats supported by most types of modeling software - the model is saved as a set of three-dimensional triangles (triangle mesh).

The next step is to open the .stl file (or other) in Z-SUITE - the program created specifically for Zortrax devices. Z-SUITE prepares the model by slicing it into individual layers and saving it as a .zcodex file. Z-SUITE also allows you to choose the material type to be used for the model and to adjust the necessary print settings, such as layer thickness, layer exposure time, exposure off time or how many support structures should be generated. The file is then ready to be printed.

To start the printing process, turn the printer on, prepare the resin type which corresponds with the one you have chosen in Z-SUITE and carefully place the resin bottle in the holder at the back of the printer. Next, open the cap of the bottle and insert the resin tube into the bottle and start the loading process with the option from the menu. While working with the Zortrax Inkspire 2, you can start, stop and pause the printing process in Z-SUITE. Once your file is prepared, you can transfer it from Z-SUITE to the printer's storage in two ways. You can either save the file on a USB flash drive and plug it into the port at the front of the device or transfer the file from Z-SUITE over Wi-Fi/Ethernet cable. In addition, Z-SUITE allows you to add several printers to the panel and create a network of devices. This solution makes it possible to produce 3D models in a small series and manage the whole process from the screen of your computer. Each printer can still be operated using the touchscreen at the front.

What's in the Box



**Zortrax Inkspire 2
3D Printer**



**USB Drive
& WIFI Adapter**



Spirit Level



**UV Resin
& Bottle Holder**



Power Cable



Wiper Set



Resin Sensor Set



FEP Film



**Z-SUITE &
Quick Start Guide**



**Safety Gloves &
Safety Glasses**



Cleaning Box



Allen Keys



Screwdrivers



Pliers



Cutting Knife



**Spatula &
Plastic Spatula**



Funnel



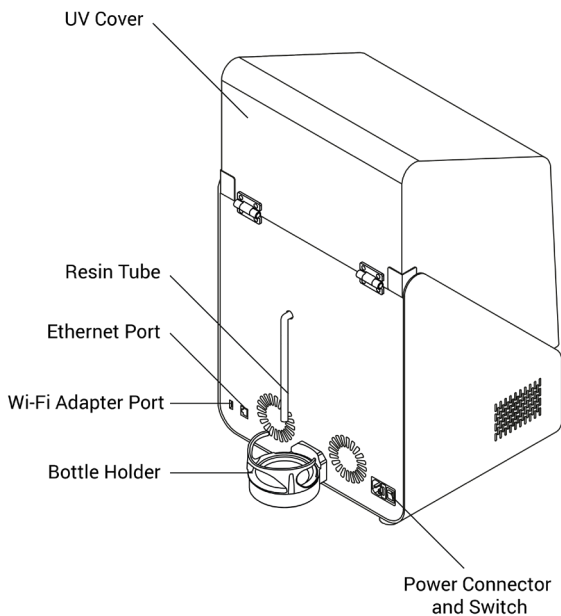
Silicone Funnel



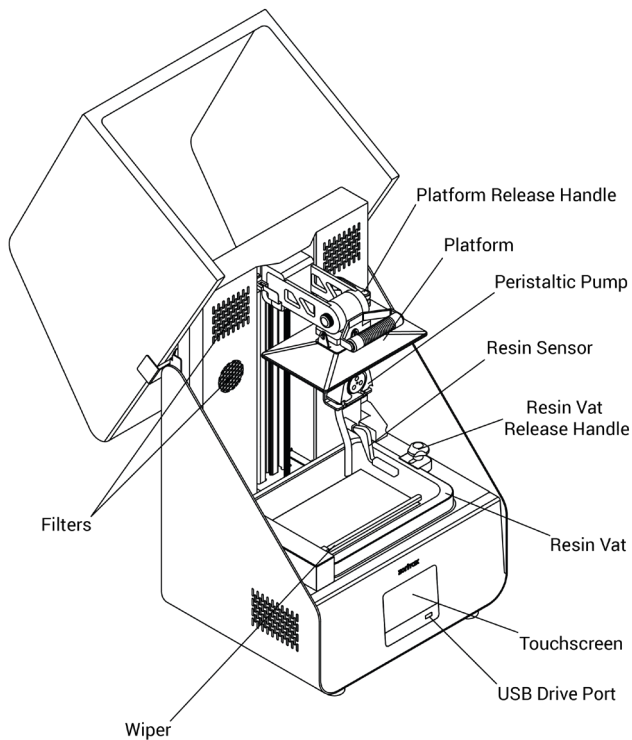
Adhesive Pieces

Main Components

1. Back view



2. Front view



Zortrax 3D Printing Technology Glossary

BOTTLE HOLDER

the component placed at the back of the printer which supports the resin level management system and is an additional safety feature against overflow or shortage of the resin. Thanks to the sensor installed in the holder, the amount of resin left in the bottle is constantly measured. The holder has been designed to accommodate bottles with different geometries.

AIR FILTERS

the filters which absorb unpleasant smells from the air that passes through the printing chamber. They are placed on the left- and right-hand side of the Z axis. In order to ensure proper filtration during the printing process, the filters should be replaced every 3-4 months, or once they become considerably dirty, e.g. with liquid resin.

FIRMWARE

the software programmed into Zortrax printers, which controls and monitors all the data in the device. It also gives the possibility to enable/disable the printer's functions.

FEP FILM

the transparent foil which is installed in the rack attached to the resin vat. It creates a clean way for the UV light to quickly and precisely cure liquid resin during the whole printing process. The FEP film requires replacement once it becomes stretched or deformed.

LCD SCREEN

the flat-panel display essential for 3D printing in the UV LCD technology. It is responsible for projecting images of layers on the underside of the resin vat during the whole printing process. It also masks the UV light so that the resin that is outside the image of a layer is not cured and can be used to print the rest of the model.

PERISTALTIC PUMP

A component which supports the resin management system and can automatically transfer liquid resin from the bottle to the vat before the printing process or whenever it is necessary. The pump also transfers the resin from the vat back to the bottle when users want to change the resin type or empty the vat. To pump the resin out, use the plastic spatula and scoop the liquid up towards the pump tube in the corner of the vat. Next, use the options from the menu to pump the resin out.

PLATFORM

an integral part of the printer, to which models adhere during the polymerization of resin. Also, it rises and lowers itself during the printing process so that each layer can solidify and the resin can be equally distributed in the tank. It can easily be removed or installed back in place.

RESIN SENSOR

the component placed in the corner of the resin vat which constantly measures the resin level and, in the case of resin shortage, it transmits a signal to the resin pump to load more material.

RESIN VAT

the container in which liquid resin is kept throughout the entire printing process. It consists of a metal frame and a rack with a FEP film. The resin vat is secured to the printer's housing directly on the LCD screen.

STARTER KIT

several pieces of equipment that are put together in one set and delivered with the printer. The set contains tools and protective equipment including, for example, FEP films, funnels and spatulas. The tools from the starter kit are required for operating the printer as well as for performing maintenance work.

SUPPORT STRUCTURES

special 3D printed structures in the form of pillars which ensure that the whole model adheres to the platform and doesn't fall into the resin tank during the printing process. Supports are printed with the same material as the model. Once the printing is done, supports have to be removed from the model by hand or using pliers.

TOUCHSCREEN

the display screen placed at the front of the printer, which enables fast and intuitive navigation through the device's menu. The screen also displays information about the current printing process and other information concerning the printer.

UV COVER

the orange cover placed on top of the printer responsible for protecting liquid resin from ambient UV light. It also helps to keep unpleasant smells of resin inside the printing chamber.

UV LCD TECHNOLOGY

a technology which relies on curing photopolymers layer after layer. This UV LCD technology involves projecting images of successive layers on the underside of the tank with liquid resin and curing them using backlight from a UV LED Panel.

WIPER

a mechanism which stirs the liquid resin during the printing process. Thanks to that it is possible to combat resin sedimentation which could prevent prints from being finished. Each printing profile for resins calibrated to work with Zortrax Inkspire 2 has appropriate wiper settings so that there is no resin sedimentation.

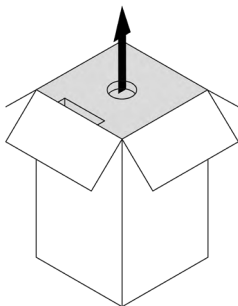
ZCODEX

a file format which contains a model prepared for 3D printing with previously selected print settings, such as layer exposure time, exposure off time, additional support exposure time, etc. All print settings can be managed in Z-SUITE before generating the .zcodex, but it is still possible to change some of the settings during the printing process using options from the menu. Each .zcodex file can be transferred to the printer directly from Z-SUITE over Wi-Fi/Ethernet cable or using a USB flash drive.

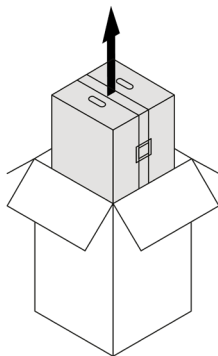
Z-SUITE

the application created specially for Zortrax devices. Z-SUITE prepares a model for 3D printing by generating the file in the .zcodex format. Z-SUITE allows the users to change and adjust the print settings, such as the size of the model, layer thickness, or how many support structures will be generated. The last step is to transfer the file to the printer's storage over Wi-Fi/Ethernet cable or by using a USB flash drive.

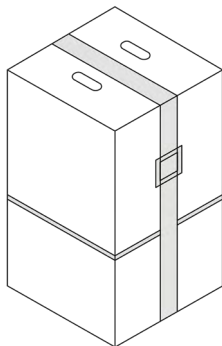
First Use Preparation



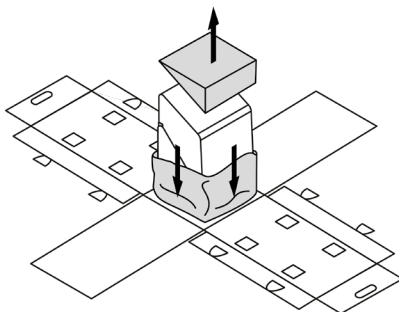
1. Open the shipping box and remove the upper cushioning.



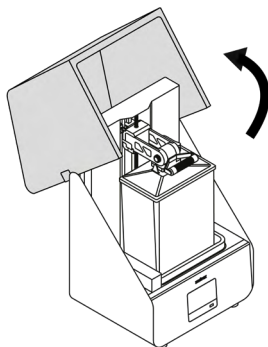
2. Remove the box with the printer from the shipping box.



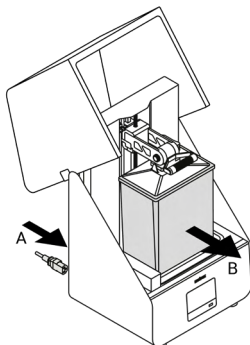
3. Unfasten the safety belt and separate it from the box.



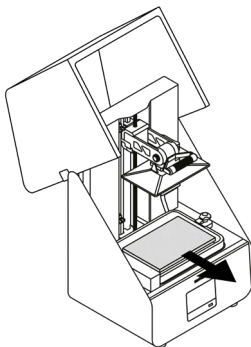
4. Open the box. Next, remove the upper cushioning and foil.



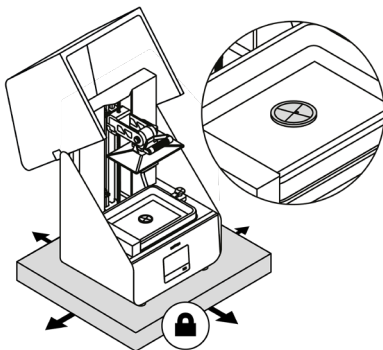
5. Open the UV cover by pushing it backwards.



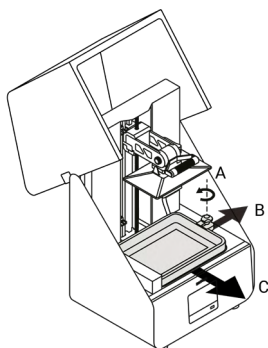
6. Plug the power cable in (A), turn the printer on, and wait until the platform automatically moves up. Next, remove the box with the Starter Kit (B).



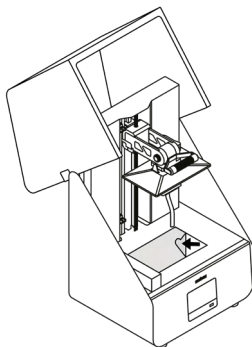
7. Turn the printer off and remove the cushioning from the resin vat.



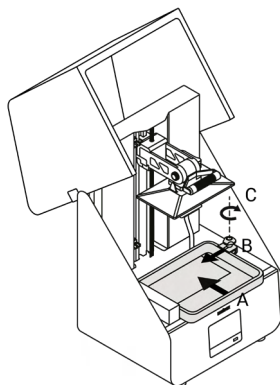
8. Place the printer on a flat and stable surface. Align the unit by tightening or loosening the printer's legs manually as needed. Use a spirit level.



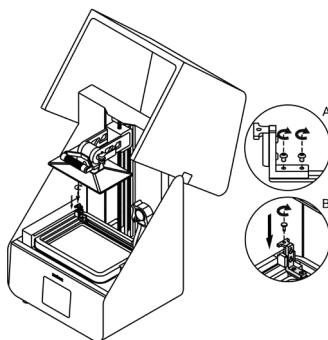
9. Loosen the release handle (A) and slide the lock to the right (B). Next, remove the resin vat (C).



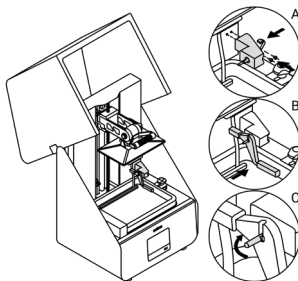
10. Remove the sticker from the LCD screen.



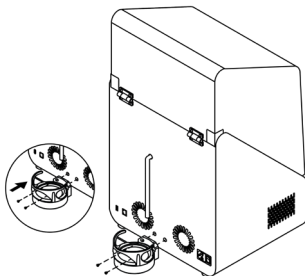
11. Install the resin vat back in its place (A), press the lock to the left (B), and tighten the release handle (C).



12. Fasten the wiper holder to the wiper blade (A) using the two screws. Next, install the wiper in the vat - insert the wiper in the holder and secure it with the screw (B).



13. Plug the resin sensor cable into the resin sensor shaft cover and secure the sensor to the printer's housing with the two screws (A). Next, install the sensor onto the shaft cover metal pin (B). Place the metal pin in the vertical position to block the resin sensor (C).












14. Plug the bottle holder cable in and secure the holder to the back of the printer with the two screws.

Connecting the printer to a network

The Zortrax Inkspire 2 can be connected to a local network in two ways: via Wi-Fi or an Ethernet cable. Both methods allow you to manage the printer directly from Z-SUITE and make it possible to remotely transfer .zcodex files from your computer to the printer.

To connect the printer to a Wi-Fi network, open the *Settings* menu and select *Wi-Fi*. From the list of available networks, choose your network and if it's required, enter the password. Select *Connect* to establish the connection.

| | | |
|---|----------------------|-----------|
|  | SETTINGS | |
| | CONNECTIVITY OPTIONS | > |
|  | FILE SORTING | > |
| | LANGUAGE | English > |
|  | WORKING OPTIONS | > |
| | ABOUT PRINTER | > |
| < CONNECTIVITY OPTIONS | | |
| REGISTER YOUR DEVICE > | | |
| WI-FI IP: 192.168.1.1 > | | |
| ETHERNET on > | | |
| ZORTRAX INCLOUD > | | |
| < WI-FI | | |
| NETWORK_1   > | | |
| NETWORK_2   > | | |
| NETWORK_3   > | | |
| | | |
| | | |

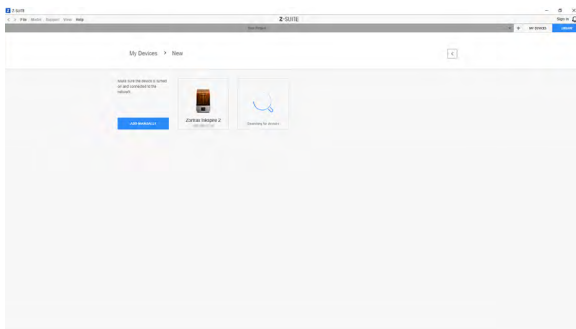
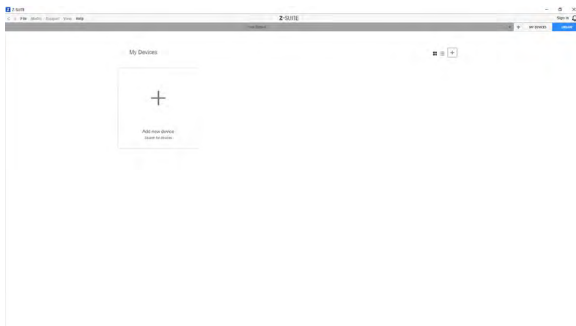
| | | |
|-------------|--|-------|
| < NETWORK_1 | | ✓ 🔒 📶 |
| MAC address | aa:bb:cc:dd:ee:ff | |
| Password | <input type="password"/> Enter password | |
| MANUAL IP | <input checked="" type="checkbox"/> on | |
| IP ADDRESS | <input type="text" value="192.168.1.1"/> | |
| RECONNECT | | 🔄 |

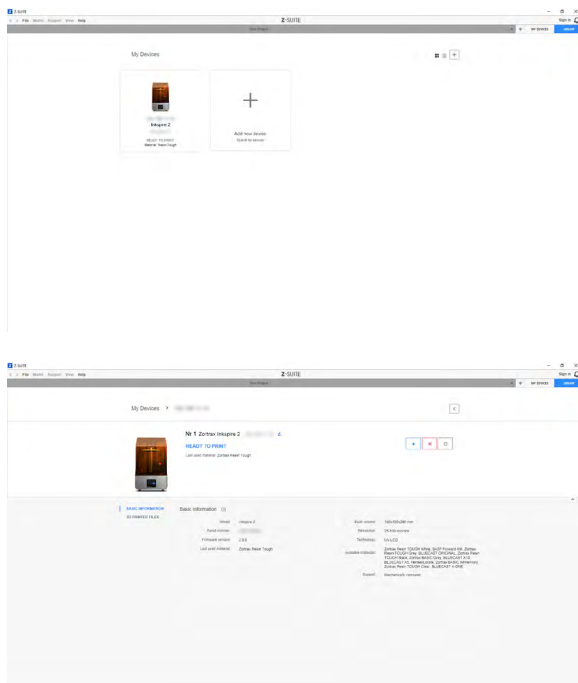
To connect the printer with an Ethernet cable, create a local network and connect the router/modem/switch to the printer. The connection will be established automatically. You can control the Ethernet connection settings in the main menu; select *Settings* and *Ethernet*.

| | |
|------------------------|-------------------|
| < CONNECTIVITY OPTIONS | |
| REGISTER YOUR DEVICE | > |
| WI-FI | IP: 192.168.1.1 > |
| ETHERNET | on > |
| ZORTRAX INCLOUD | > |
| | |

| | | |
|-----------------|--|--|
| < ETHERNET | | <input checked="" type="checkbox"/> on |
| MAC address | aa:bb:cc:dd:ee:ff | |
| MANUAL IP | <input checked="" type="checkbox"/> on | |
| IP ADDRESS | 192.168.1.1 | |
| SUBNET MASK | 255.255.255.0 | |
| DEFAULT GATEWAY | 192.168.1.1 | |

Once your printer is connected to the network, open the *My Devices* panel in Z-SUITE. You can search for devices available in the local network and add them to the program's panel. Select the icon with your printer's IP address and click on it to add the printer to the panel. You can also add a printer manually by typing its IP address.



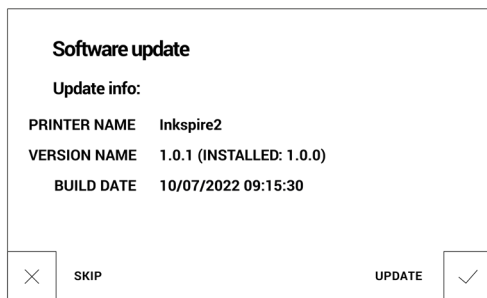


Each added printer can easily be managed in Z-SUITE. You can start, stop and pause the printing process, see the printer's current state (*Ready to Print / Printing / Paused / Offline*), change the name of your printer, or preview basic information about the printer.

In the **3D Printer Files** tab, you can preview all .zcodex files that are stored on the printer's USB flash drive.

Firmware Update

If your printer is connected to the Internet using either Wi-Fi or an Ethernet cable, it automatically checks for available firmware updates and starts the installation process. You can also check if there is a newer firmware version available at any point of working with the Zortrax Inkspire 2 and update the firmware. Select *Settings -> About Printer -> Check for updates*.



If you have decided not to connect the printer to the Internet, check <https://support.zortrax.com/downloads/> regularly for updates. To update the firmware, transfer the Update.zar2 file to a USB flash drive and plug the USB drive to the port at the front of the device to start the installation.

Navigating through the Menu

The main menu is divided into four submenus: *HOME*, *TOOLS*, *SETTINGS* and *PRINT*. Navigating through the menus and activating or deactivating the printer's functions and settings is possible through the touchscreen.

The *HOME* menu displays all relevant information about the printer and its current state: IP address, the type of connection to a local network (Wi-Fi or Ethernet), the type of resin present in the vat, and storage used on the USB flash drive.

The *TOOLS* menu contains several options useful during the printing process and maintenance work:

Material - this option allows you to choose the type of resin you're going to use.

Platform - this option allows you to change the position of the platform. You can either move the platform (up or down) or set it in the home position.

Calibration - this option activates the procedure of platform calibration.

Resin level control system - the submenu with all options useful to manage the resin level system:

Level sensor calibration - this option allows you to perform resin sensor calibration.

Material weight sensor calibration - this option allows you to perform calibration of the material weight sensor.

Control pump - this option allows you to load resin from the bottle placed in the bottle holder, unload resin from the vat, and run the wiper.

Clean printer - this option allows you to run a five-step procedure of cleaning the resin vat, FEP film, and resin pump. All instructions are provided on the screen during the processes.

Lamp test - this option allows you to check the UV lamp for proper operation.

Fans test - this option allows you to check the printer's fans for proper operation.

Device warnings - this tab displays all warning notifications that have occurred while using the printer.

Maintenance - this tab displays all maintenance activities that have to be performed on the printer.

The **SETTINGS** menu allows you to configure the printer according to your preferences:

Connectivity options:

Register your device - the tab in which it is possible to register/unregister the printer.

Wi-Fi - this option allows you to connect the printer to a local network.

Ethernet - this option allows you to control the Ethernet connection settings.

Zortrax incloud - this option allows you to connect your printer with your Zortrax inCloud account.

File sorting - this option allows you to organize saved files by date or alphabetically.

Language - this option allows you to change the language of the menu.

Working options:

Resin level control type - here you can set the type of resin level control - automatic or manual.

Resin level control - this option enables/disables the resin level control in the device.

Wiper - this option enables/disables the wiper in the device.

Buzzer - this option enables/disables the buzzer in the device.

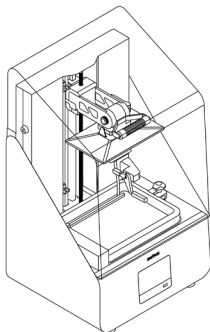
Software autoupdater - this option enables/disables automatic software updates in the device.

About printer - this tab contains information which identifies the printer model, its firmware and hardware version, and serial number. Here you can also check if there are firmware updates available with the option Check for updates.

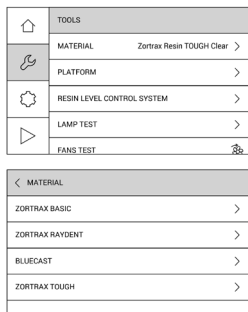
Factory reset - this option allows you to restore your device to default settings.

Select **Print** to choose a model for printing and start the printing process. The printer will display all information concerning the process on the screen.

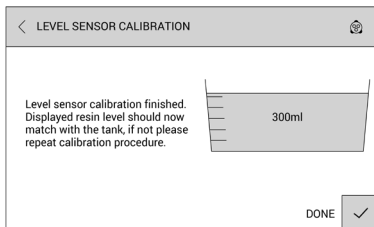
Changing the Resin



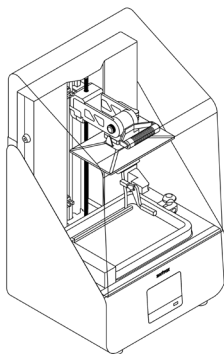
1. Open the UV cover by pushing it backwards.



2. Select *Tools* and then *Material*. Choose the resin type you're going to use. Next, the printer will start the procedure of cleaning the resin vat. If you haven't filled the resin vat with resin yet or you have properly cleaned the vat before, you can skip this step.

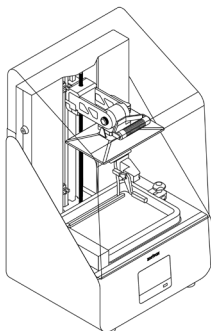


3. Next, carry out resin level sensor calibration. Follow the instructions provided on the screen.



4. Your device is ready to be used.

Platform Calibration

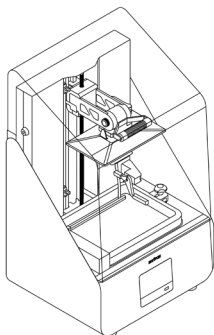


1. Open the UV cover by pushing it backwards.

| | |
|----|--------------------------------------|
| 🏠 | TOOLS |
| 🔧 | MATERIAL Zortrax Resin TOUGH Clear > |
| ⚙️ | PLATFORM > |
| ⚙️ | RESIN LEVEL CONTROL SYSTEM > |
| ▶️ | LAMP TEST > |
| | FANS TEST |

| | |
|---|-----------------|
| < | PLATFORM |
| | MOVE PLATFORM > |
| | CALIBRATION > |
| | |

2. Start the calibration with the options from the menu. Select *Tools* and then *Calibration*. Follow the instructions provided on the screen.



3. Your printer is ready to be used.

Z-SUITE Installation

The latest Z-SUITE update can be found in the *Downloads* section at: <https://support.zortrax.com>. To download and install Z-SUITE, you can enter the serial number of your printer or your email address. This number can be found in the printer's menu: *Settings* -> *About Printer*, and on the nameplate at the back of the printer.

Remember to update Z-SUITE regularly. All updates are available at: <https://support.zortrax.com/downloads/>.

How to Start, Remove and Post-Process a Print

Caution

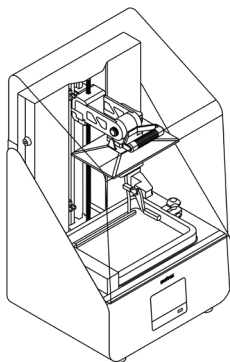
Wear gloves and glasses during all procedures.

Prepare paper towels and keep them in your workplace for wiping up liquids.

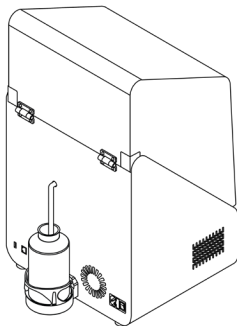
Note

Printing and post-processing waste, including empty bottles, failed prints, supports, rafts as well as paper towels with resin residues should be put in the UV Station or in any source of UV light before disposal. Uncured resin has to be disposed of in accordance with national and local regulations concerning hazardous waste.

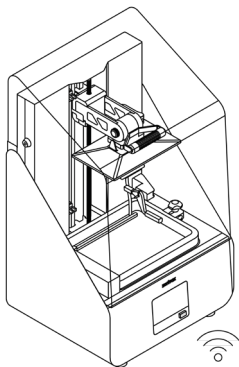
Detailed information regarding usage and waste disposal of the liquid detergent utilized to clean 3D prints should be found in the SDS delivered by the producer of the liquid.



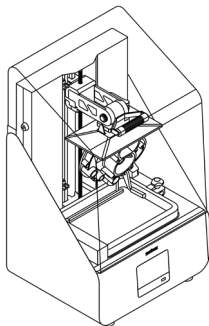
1. Turn the printer on.



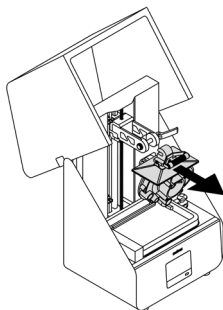
2. Open the main menu and select *Material*. Choose the resin type you're going to use. Follow the instructions provided on the screen. Place the resin bottle in the bottle holder at the back of the printer, remove the cap and insert the resin tube into the bottle.



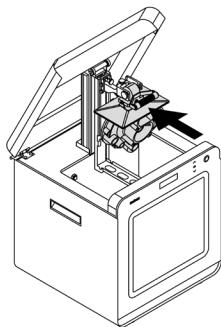
3. Transfer the file to the printer (via Wi-Fi/Ethernet or using the USB drive) and start the printing process.



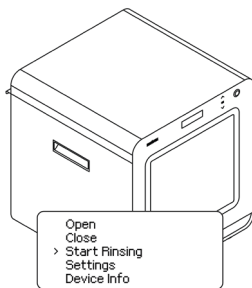
4. Once the printing process is finished, wait until the resin fully drains off of the model. Open the top cover.



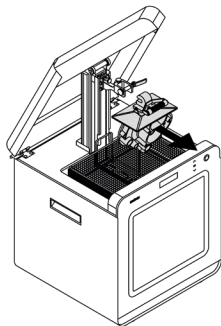
5. Wipe the top edges of the platform with a paper towel. Next, open the platform release handle and detach the platform from the holder. Be careful not to spill the liquid resin on the printer and its surroundings. Close the top cover.



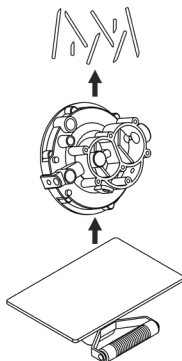
6. Immediately attach the platform onto the holder in the Cleaning Station and close the handle. The model cannot be exposed to the UV light.



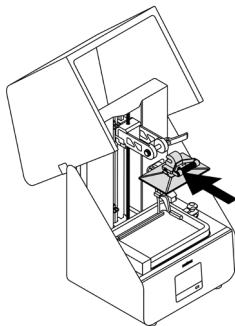
7. Turn the device on. Cleaning time depends on the size of models and the resin type used. Suggested cleaning time is provided in Z-SUITE while exporting the .zcodex file or at: <https://support.zortrax.com/>.



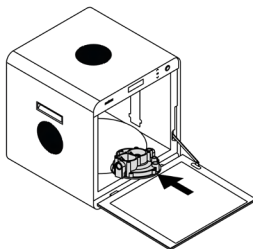
8. Leave the platform with the model to air dry and ensure that the model isn't exposed to the UV light until it's completely dry. You can use compressed air for better and faster drying. Open the release handle and detach the platform from the holder.



9. Next, remove the model from the platform. Remove the raft and support structures from the model.



10. Install the platform back in the printer.



11. Place the model on the glass table in the Curing Station and start the curing process using options from the menu.

| | | |
|---|----------------------------|---|
|  | TOOLS | |
|  | MATERIAL | Zortrax Resin TOUGH Clear > |
|  | PLATFORM | > |
|  | RESIN LEVEL CONTROL SYSTEM | > |
|  | LAMP TEST | > |
|  | FANS TEST |  |

| | | |
|---|------------------------------------|---|
| < | RESIN LEVEL CONTROL SYSTEM | |
| | LEVEL SENSOR CALIBRATION | > |
| | MATERIAL WEIGHT SENSOR CALIBRATION | > |
| | CONTROL PUMP | > |
| | CLEAN PRINTER | > |

12. If you're not going to print with the same resin type, perform the resin vat cleaning procedure. Select *Tools -> Clean printer* and follow the instructions displayed on the screen.

NOTE! It is advisable to filter the already used resin after each print. Mix it with the fresh resin to make sure that there are no cured remains in the liquid, as they could have a negative influence on the quality of the next print. Mixing used and fresh resin also helps to extend the resin lifespan.

Available Materials

The complete offer of materials is available at: <https://zortrax.com/resins/>.

Material Technical Data Sheets and *Safety Data Sheets* can be found on the same website.

When 3D printing with the Zortrax Inkspire 2, the Manufacturer recommends using Zortrax certified materials to acquire the best possible quality of prints.

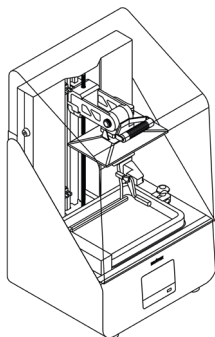
Basic Maintenance and Service Work

Maintenance work should be regular in order to keep the printer in good condition and achieve high quality prints every time. Some parts require maintenance before each print and some every few hundred working hours. All maintenance activities do not take much time and are not complicated. Before commencing any repair, it is important to turn off the printer and let it cool down. Remember to always wear gloves and glasses.

The printer is delivered with a full set of tools needed to carry out maintenance service work.

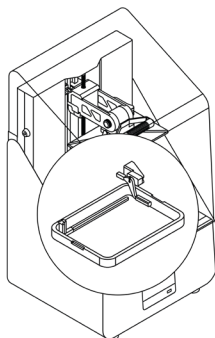
The following tables present maintenance and repair guidelines connected with each section of the Zortrax Inkspire 2, together with specific check points, necessary activities and their frequency.

1. Main



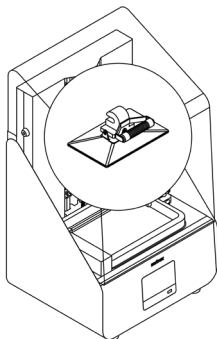
| Activity | Frequency | Solutions to the problems | Necessary accessories |
|---|-------------------------------------|---|---|
| Cleaning the machine, its interior and surroundings | Before each printing process | Remove dust and drops of resin from the machine with paper towels. If it's necessary, use IPA. | -paper towels, -IPA, -safety gloves |
| Checking the degree of wear of the filters and if it's necessary, cleaning them | Every 500 working hours | - | - |
| Replacing the filters | Every 3-4 months | The filters are installed at the back of the printer's housing | -New filters |
| Cleaning the LCD screen | Every time the resin vat is removed | Soak a paper towel in IPA and clean the LCD screen. | -paper towels, -IPA, -safety gloves |
| Cleaning the UV cover | Once a week | Clean the cover from dust using a soft cloth. NOTE! Do not use IPA or chemical detergents for that purpose. | -a soft cloth |

2. Resin vat



| Activity | Frequency | Solutions to the problems | Necessary accessories |
|---|---|--|--|
| Cleaning the underside of the FEP film | Every time the resin vat is removed | Soak a paper towel in IPA and clean the underside of the FEP film. | -paper towels, -IPA, -safety gloves |
| Checking if there are residues of cured resin in the vat | Before each printing process | Use a plastic spatula and slightly mix the resin to check if there are any residues in the liquid. | -a plastic spatula, -safety gloves |
| Checking if there are residues of cured resin on the FEP film | Before each printing process | Empty the resin vat. If there are any residues of cured resin on the FEP film, remove them using a plastic spatula. | -a plastic spatula, -safety gloves |
| Emptying and cleaning the resin vat | Every time the resin type or color is changed | Run the <i>Clean printer</i> procedure from the menu and follow the instructions displayed on the screen. | -bottle of resin, -paper towels, -a plastic spatula, |
| Replacing the FEP film | Once the FEP film becomes bent, deformed, or perforated | Follow the instructions in the manual: https://support.zortrax.com/fep-film-replacement/ | -a new FEP film, -a screwdriver, -paper towels, -IPA, -safety gloves |

3. Platform



| Activity | Frequency | Solutions to the problems | Necessary accessories |
|-----------------------|------------------------------|---|-----------------------------|
| Cleaning the platform | Before each printing process | Cured resin should be removed using a spatula. Liquid resin should be removed using a paper towel. | -spatula, -paper towels, |
| Calibration | After each failed print | Adjust the platform's position and tighten the platform screws. The platform has to properly adhere to the LCD screen. Run calibration from the menu and follow the instructions displayed on the screen. | - |

Support and Troubleshooting

In order to ensure safety of every 3D printer's user, the Manufacturer provides various support while identifying and solving technical problems independently.

In case of difficulties with operating a Zortrax 3D printer, at first you should seek guidance in this User Guide, check the manuals available at: <http://support.zortrax.com/>, or consult our technical specialists through the Support Form available at: <http://support.zortrax.com/support-form/>.

The most common problems are listed below along with the list of possible solutions.

The print does not adhere to the platform during the printing process:

1. Make sure that the model has been designed properly and its mesh does not contain any errors.
2. Make sure that both the platform and the FEP film are clean, that is, there are no residues of cured resin on them. Filter the already used resin and mix it with the fresh resin to make sure that there are no cured remains in the liquid.
3. Carry out platform calibration again.
4. Prepare a sheet of sandpaper (grit >160) and put it on a flat surface. Place the platform on the paper and smooth its surface in a circular motion.
5. Check if the FEP film is not bent, deformed, or perforated. Replace the FEP film if you notice such defects.
6. Contact the Support Center at: <http://support.zortrax.com/support-form>.

The print delaminates or it does not adhere to the support structures:

1. Make sure that the model has been designed properly and its mesh does not contain any errors.
2. If the support structures have been generated in a different program than Z-SUITE, make sure that the model's mesh is fixed.
3. Make sure that the print has been properly prepared in Z-SUITE, that is, its big and flat surfaces have been arranged at an angle. Each layer that will be parallel to the platform has to be as small as possible to be printed successfully.

4. Make sure that while preparing the file in Z-SUITE you chose an appropriate printing profile, that is, the print settings match the type of used resin. If the profile is correct, enable *Additional support exposure time* option.
5. Check if the FEP film is not bent, deformed, or perforated. Replace the FEP film if you notice such defects.
6. Contact the Support Center at: <http://support.zortrax.com/support-form>.



Error Messages

Whenever there is a technical issue caused by a hardware failure, negligence or inappropriate use of Zortrax printers, the firmware immediately displays an error message on the screen. The following list explains all error messages and provides potential causes and suggested solutions.

| Error Message | Potential Cause | Suggested Solution |
|--|---|---|
| #0, An unexpected error occurred | - | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #1 LCD screen not connected | LCD screen control system error | Check if the the HDMI and LCD cables are connected. If the problem reoccurs, contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #3 Unable to continue printing | Control board communication error | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #4 Communication issue with LCD screen (HDMI signal) | LCD screen control system error | Check if the the HDMI and LCD cables are connected. If the problem reoccurs, contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #5 Wrong lamp temperature | Temperature of the UV lamp is too high. The cooling fan may be faulty | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #6 An unexpected error occurred | An unexpected error has occurred in the application | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #7 No firmware detected | There is no firmware installed in the printer | Download the latest firmware update from https://support.zortrax.com/downloads/ . Transfer the update.zar2 file to a USB flash drive. Plug the USB into the port at the front of the printer and select <i>Refresh</i> to start the installation |
| #8 Unable to communicate with control board | No connection with the control board | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |

| | | |
|---|---|---|
| #9 Fan error | The UV lamp fan has failed | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #10 Communication issue with LCD screen (IC error) | LCD screen control system error | Check if the the HDMI and LCD cables are connected. If the problem reoccurs, contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #11 Endstop error | The printer is unable to detect the endstop | Check if the endstop is functioning properly. Tighten the endstop screw placed on the guideway fixed block. If the problem reoccurs, contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #12 Cannot print this model - it's too tall | The model exceeds the acceptable dimension in the Z axis | Prepare the model again in Z-SUITE |
| #14 Temperature sensor broken or not connected | The temperature sensor has failed or may be disconnected | Check if the temperature sensor is properly connected. If the problem reoccurs, contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #15 Cannot update the firmware | An error has occurred while updating the firmware | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #17 Communication issue with LCD screen (TE signal) | LCD screen control system error | Check if the the HDMI and LCD cables are connected. If the problem reoccurs, contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #18 Firmware malfunction | Control board error | Download the latest firmware update from https://support.zortrax.com/downloads/ . Transfer the update.zar2 file to a USB flash drive. Plug the USB into the port at the front of the printer and select <i>Refresh</i> to start the installation |
| #19 GUI doesn't receive packages | Control board malfunction | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #21 The motherboard has rebooted | Printer has rebooted unexpectedly | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #22 Unable to determine bootloader version | Control board error (Bootloader has not been loaded properly) | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |

| | | |
|---|--|---|
| #23 Cannot start communication with motherboard | Motherboard malfunction, or connectivity between Android PCB and motherboard has been lost | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #100 Wiper blocked or endstop error | Malfunction of the wiper | Check if the wiper is mounted properly. If the problem reoccurs, contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #101 Communication issue with level sensor | Level sensor is broken | Check if the bottle holder is mounted properly. If the problem reoccurs, contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #102 Right UV fan not detected | Right UV fan wire is disconnected or has been damaged | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #103 Left UV fan not detected | Left UV fan wire is disconnected or has been damaged | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |
| #104 UV fans error | UV fans do not work properly | Contact Zortrax Support Center through the support form: https://support.zortrax.com/support-form/ |

| | |
|--|---|
|  | If the device begins to operate in an unidentified way, safely unplug the printer from the power supply and immediately contact the Support Center specialists via the support form at: http://support.zortrax.com/support-form/ . |
|  | While shipping the device to the Manufacturer's technical service, it is important to properly prepare a package. Use the original packaging. Detailed instructions on how to pack the device are available at: http://support.zortrax.com/inkspire-packing/ . |

More manuals and tips & tricks articles are available at our Support Center.

www.zortrax.com

Specification

| Printing | |
|--------------------|---|
| Technology | UV LCD |
| Layer Thickness | 25, 50, 100 microns |
| Pixel Size | 50 microns (0.05 mm) |
| LCD screen | 8.9" monochrome |
| Light source | integrated LED panel (wavelength 405 nm), ensuring even light distribution across the entire platform |
| Supports | mechanically removed - printed with the same material as the model |
| Device | |
| Build Volume | 192 x 120 x 280 mm (7.56 x 4.72 x 11.02 in) |
| Platform | pre-calibrated during quality control; immediately ready for 3D printing |
| Connectivity | Wi-Fi, LAN, USB |
| Operating system | Android |
| Touchscreen | 4" IPS 800 x 480' |
| External materials | applicable |
| Supported formats | .zcodex2 |

| Temperature | |
|---|---|
| Ambient Operation Temperature | 20 - 40° C (68 - 104° F) |
| Storage Temperature | 0 - 35° C (32 - 95° F) |
| Electrical | |
| AC Input | 100-240 V AC 6.2 A 50/60 Hz |
| Maximum Power Consumption | 340 W |
| Software | |
| Software Bundle | Z-SUITE 2® |
| Supported File Types | .stl, .obj, .3mf, .dxf (only 2D models), .ply |
| Supported Operating Systems | Mac OS Mojave and newer versions / Windows 7 and newer versions |
| Additional information | |
| All information contained in this User Guide and specification is subject to change without notice. | |

Recycling

Disposal of paper and plastic packaging

To protect the environment, the Manufacturer recommends placing used paper and plastic packaging in specially designated containers, according to your local recycling guidelines.

Disposal of resin

Printing and post-processing waste, including empty bottles, failed prints, supports, rafts as well as paper towels with resin residues should be put in the UV Station or in any source of UV light before disposal. Uncured resin has to be disposed of in accordance with national and local regulations concerning hazardous waste.

Detailed information regarding usage and waste disposal of the liquid detergent utilized to clean 3D prints should be found in the SDS delivered by the producer of the liquid.

Waste electrical and electronic equipment



This symbol indicates that it is electrical and electronic equipment which must not be disposed of with household waste. Substances contained in the equipment may be harmful to natural environment. Waste electrical and electronic equipment cannot be disposed of in landfills and must be recycled.

For information on where to dispose of waste equipment, contact the reseller, the Manufacturer, or the importer of the device. Disposing of waste electrical and electronic equipment along with other waste is prohibited by the Directive 2012/19/UE.

Certification



The Manufacturer ensures that the equipment complies with all relevant standards. In case of questions and problems contact the Manufacturer through the support form: <http://support.zortrax.com/support-form/>.

zortrax

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technical support: support@zortrax.com

more information: zortrax.com

update: 24.10.2022

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