can download a 3D-printed applicator from Printables.com. More info can be found at help.prusa3d.com.

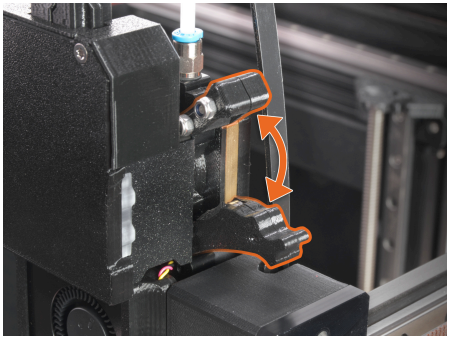
6.5. Fans

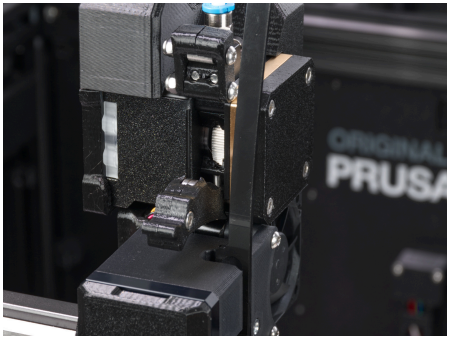
The RPM (revolutions per minute) of both fans is constantly measured. This means that the printer will **report an error if the fan suddenly slows down,** for example due to a piece of filament stuck in it. In such a case, check and remove any dirt from the relevant fan. Do not try to bypass the RPM check - this could damage the printer!

Both fans should be checked and cleaned after a few hundred hours of printing. Dust can be removed with compressed air in a spray can, small plastic threads can be removed with tweezers. **Do not blow compressed air on the running fan.**

6.6. Extruder Feeding Gear

The feeding gear in the extruder does not need any lubricant. Over time, **a filament powder deposit may form in the grooves,** causing poor extrusion of filament. Remove the debris using compressed air in a spray, small plastic threads can be removed with tweezers. Use the access opening on the side of the extruder. Clean as much as possible, then turn the wheel (LCD Menu - Control - Axis) and continue.





Warning: Never, under any circumstances, open the gearbox itself. Tampering with the gearbox may lead to voiding your warranty.

6.7. Extruder is Clogged or Jammed

Clogged extruders can cause issues when printing or when loading new filament. On the top of the extruder, there is a pair of screws directly next to the filament inlet. You can adjust the idler pressure by loosening or tightening these screws. By unlocking the top clip, you can open the hinged door (the so-called idler) and check the filament track for any blockages.

When you open the idler, you can easily clean the feed wheel of all filament remnants. We recommend regularly cleaning the wheel.

6.8. Cleaning the Nozzle

Do not touch the nozzle during this procedure - it is hot and there is a risk of burning yourself! To better access the extruder during cleaning, lower the heated bed as far as possible in the LCD menu - Control - Movement - Z Axis.

The filament does not come out of the nozzle

If the filament does not pass through the extruder and no plastic is being extruded, check the following:

- Open the idler on the side of the extruder to see if the filament strand reached the extruder gear and continues down into the nozzle
- See if the temperatures are set correctly (215 °C for PLA, 260 °C for ASA, etc.)
- Check if the fan on the side of the extruder is spinning

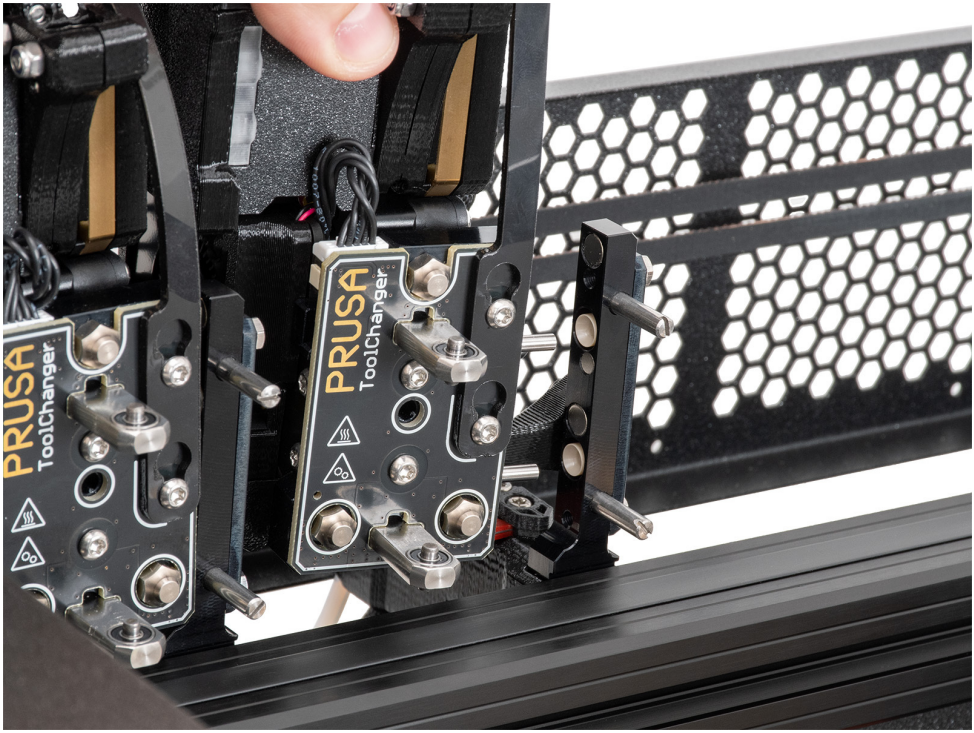
If the filament strand is not visible (does not reach the extruder wheel), the problem is likely in the PTFE tubes. Take advantage of the fact that the tubes are transparent and check where the filament currently is and if it reaches the extruder. If the filament does not pass smoothly and gets stuck, make sure that there is no debris in the PTFE tubes and that your filament has the correct diameter and quality - various bumps, etc. can cause the filament to get stuck. Try to cut off a roughly 130 cm (4 ft.) long piece and repeat the filament insertion attempt.

The filament does not come out of the nozzle or only a small amount comes out

If you see that the filament passes across the extruder gear but does not come out of the nozzle, it means that the nozzle is probably clogged. You can clean it as follows:

1. Heat the nozzle to the appropriate temperature for the filament material you are printing with or slightly above. First, feed the filament, then insert an acupuncture needle (included in the package) or thin wire (0.3-0.35 mm) into the nozzle from the bottom to a depth of about 1-2 cm. Use protective gloves in case material suddenly starts to come out of the nozzle.
2. Select the Load Filament option from the LCD menu and check that the nozzle is actually extruding the filament.
3. Again insert the wire or acupuncture needle into the nozzle and repeat the whole procedure several times. If the filament is being extruded correctly, the nozzle is clean.

Remember that you can also remove the Nextruder from the dock manually - slide it to the side and tilt it to unhook it from the dock. This gives you better access to its components.



6.9. Troubleshooting Faulty Sensor Readings and Removing Errors

If you encounter problems with the filament sensor, such as incorrect (or random) readings, make sure the sensor is correctly wired. If the problem persists, please contact our tech support.

6.10. Filament Sensors

Original Prusa XL is equipped with multiple filament sensors: the first one is always located on the side, close to the input of the PTFE tube where you feed the filament. The second one is located in the extruder. If you have the Original Prusa XL with multiple extruders, there will be a corresponding number of filament sensors. Both filament sensors are necessary for the correct filament retraction - when the sensor on the side detects that the filament has run out, the filament will be retracted in time. If everything depended just on the filament sensor in the extruder, it would not be possible to easily retract the filament.

6.11. Toolchanger Maintenance and Troubleshooting

The toolchanger is designed to be maintenance-free. There are no regular maintenance operations that need to be carried out. Simply keep the toolchanger carriage clean and free of debris. Make sure none of the dock pins are bent or damaged in any other way.

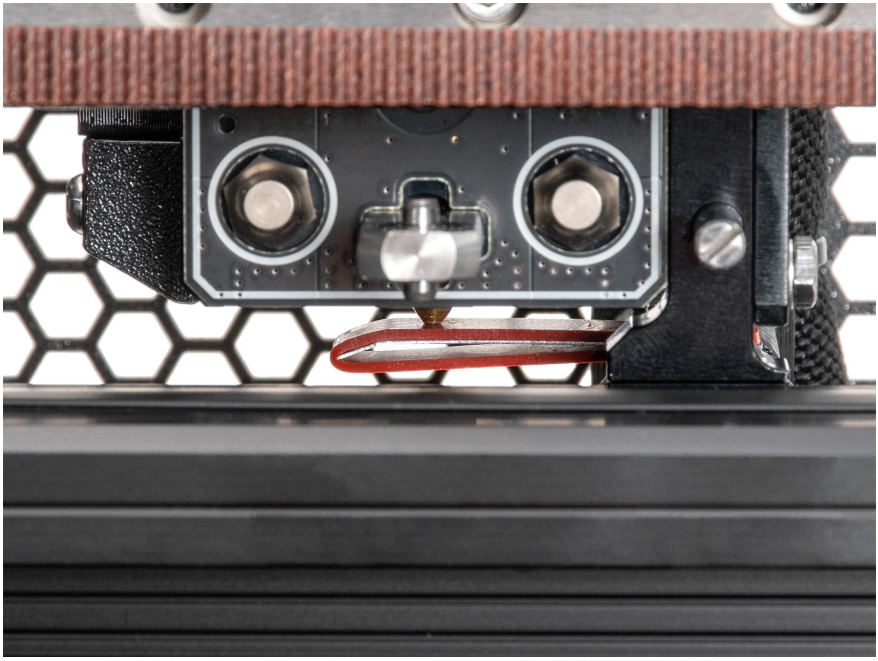
If you encounter issues with the toolchanger, e.g., when the toolheads are not correctly picked up or parked, run the calibration again (Dock Offset and Tool Offset). If there is an issue with the printer, the calibration will display an error screen describing the issue. Contact our tech support if you are unable to resolve the situation on your own.

6.12. PTFE Tubes Maintenance

PTFE tubes leading to individual extruders are mostly maintenance-free. However, if they are damaged or full of debris, it may be necessary to replace them with new ones - you can order spare parts from our e-shop.

6.13. Nozzle Seal Maintenance

When an extruder is parked, the nozzle is resting on a small metal lip with a silicone surface that prevents the filament from oozing out. In some cases, plastic debris may accumulate on the surface which makes parking the extruder more difficult. Check this area from time to time and remove any excess plastic if needed.



6.14. Flashing an Unofficial (Unsigned) Firmware:

We take security seriously. Before each firmware update, we rigorously test it to ensure that all of its security features are working correctly. **If any of the sensors detect an unexpected reading, the heater will be immediately disconnected to prevent any damage to the printer or its surroundings.** We cannot guarantee the same level of security with unofficial (community) firmware.

Official firmware is signed with a private key and the printer verifies the key before updating. To flash your own (or unofficial) firmware to the printer, **you must first break the seal on the mainboard** and place a jumper in the correct position. **Doing this voids the electronics warranty.** To break the seal, you must open the electronics box and locate a safety fuse. Then, **take a small flathead screwdriver or very thin sharp pliers and break off the thin middle part** of the fuse. **Before attempting this procedure, carefully review the photos in this chapter!** Breaking the seal is **irreversible** and is recommended only for very experienced users. Afterward, **focus on the three pins above the seal** – it is necessary to place a jumper on two of the pins closer to the center of the board. If the jumper is on different pins, move it. Without the jumper, the board cannot boot.

Breaking the seal on the mainboard of the Prusa XL is IRREVERSIBLE and leads to the VOIDING OF THE WARRANTY ON ELECTRONIC PARTS OF THE PRINTER. If you break the seal, we disclaim any responsibility for any damage to the printer and/or its surroundings (e.g. in case of a fire).

7. FAQ - Frequently Asked Questions and Basic Troubleshooting

In case of a critical failure, the Original Prusa XL may display an error screen with short instructions on how to proceed. This screen contains a link to a detailed article on our Knowledge Base at help.prusa3d.com as well as a QR code that can be scanned by a mobile phone to quickly access the link.

7.1. Mesh Bed Leveling Fails

In case the automatic bed leveling (Mesh Bed Leveling) fails, the cause is likely to be either the Loadcell sensor or a misaligned Z axis. Run the Auto Home and Z axis calibration from the Control menu and see if the issue goes away.

If the issue persists you can manually inspect whether the Z-axis (heatbed) is correctly aligned. Disable the stepper motors in the settings (Disable Stepper Motors) and manually move the print head from left to right and watch if the nozzle maintains a constant distance from the bed.

Small deviations are allowed as the printer is able to compensate with Mesh Bed Leveling. If the nozzle is scraping against the print sheet on one end and is several millimeters above the sheet on the other end, then the Z-axis is misaligned.

If you built the printer using the assembly kit, make sure that the heatbed assembly is correctly installed and aligned. Follow the assembly guide and double-check every step.

7.2. Printer Does Not Recognize the Inserted USB Drive

If the printer does not recognize the USB drive, try restarting the printer first. In case the error "Error mounting USB drive" appears, the most probable cause is an incompatible file system (e.g. exFAT). Use a smaller USB drive (4-16GB) formatted with the FAT32 file system. More information on formatting and using USB drives can be found on our Knowledge base at help.prusa3d.com.

Once the USB drive is inserted, one of two situations may occur:

Cannot access the Print menu after inserting the USB drive

1. Restart the printer first
2. Use a USB drive formatted to FAT32 with a single partition
3. Try using a different USB drive

If you have tried multiple USB drives and none of them can be read, there may be a problem with the mainboard. Contact our technical support.

USB drive is recognized but no files are visible in the file browser:

1. Make sure you are using compatible G-code
2. Make sure the file is correctly written to the drive (in Windows use the “Safely remove” function before ejecting the drive)
3. Try a different USB drive and a different G-code file
4. Try renaming the file to something simpler, e.g. model.gcode

7.3. Loose Belts

Check both belts to make sure they are properly tensioned. Loose belts can cause printing errors or prevent the printer from starting up. The easiest way to check the belt tension is to print a circular object. If the result is not perfectly round, you need to adjust the belt tension. Instructions can be found at help.prusa3d.com.

7.4. Homing Failed

This issue is usually caused by a blockage in one or more axes. Perform the Auto Home calibration from the LCD Menu and observe the movements of the printer. Make sure the cables and PTFE tube leading to the extruder are not touching anything (a wall, shelf, etc.) If there is no visible block preventing the axes from moving, try adjusting the Crash detection sensitivity in the Settings menu.

If you assembled the Original Prusa XL as a kit, make sure that the cables running from the electronics to the extruder are not blocked by anything. Make sure the cable assembly is correctly installed - when looking at the front of the printer, the PTFE tube should be on the left, the cable bundle on the right.

7.5. Heating Error

If the printer stops and the screen is red with a heating-related error, please check the connections of the heating element and thermistors. Detailed descriptions can be found at help.prusa3d.com.

If you assembled the printer using the assembly kit, pay special attention to the electronics box under the heatbed. Go back to the assembly manual and check that the heatbed is wired correctly (A and B ports, positive and negative terminals).

7.6. Fan Error

If your printer stops and displays a fan-related error message, check both fans on the print head. It is possible that they are not spinning because they got clogged up. If the problem is elsewhere (e.g. cables connectivity) visit help.prusa3d.com for more information. Before you start with more advanced troubleshooting, make sure you're running the latest firmware available from our website.

7.7. Reverting to an Older Firmware

Sometimes it is necessary to reinstall an older version of firmware. Upload a file containing the older firmware onto a USB drive formatted with the FAT32 system. Insert the drive into the printer, press the restart button and once the Original Prusa XL logo appears on the screen, press and hold the knob. This will activate the firmware update screen. Select "Flash" to reinstall the current firmware with the version from the USB drive.

7.8. Nozzle Hitting the Sheet / Other Z-axis Issues

If you are having issues with first-layer calibration or Mesh Bed Leveling procedure, first make sure everything is properly wired - check the connectors on the Dwarf board in the extruder. Next, perform Auto Home calibration on all axes to make sure that everything is properly aligned (especially the heatbed). Run the Loadcell calibration again.

8. Advanced Hardware Troubleshooting

Due to the length of the articles, it is not possible to include detailed troubleshooting guides in this handbook. However, the Original Prusa XL will display an error screen with a short recommendation on how to proceed further if it runs into a problem. This screen will also contain a link to a detailed article in our Knowledge Base at help.prusa3d.com. Additionally, there is a **QR code that you can scan with your mobile phone** for quicker access to the link.

Troubleshooting guides for component replacements and advanced hardware issues can be found online at help.prusa3d.com.

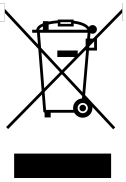
9. Troubleshooting Print Quality Issues

If prints are not quite up to your expectations or even having major flaws (shifted layers, ghosting, under-extrusion), it is necessary to find the cause of the issue and address it. On our website help.prusa3d.com you will find troubleshooting guides for 3D printing quality issues, including pictures and specific advice for different types of printers (some of which may still be in English only).

10. Original Prusa PDU - Manual

The Original Prusa PDU is a power strip with a noise filter designed to power 3D printer power supplies. Please read the following text carefully - it contains valuable information to help you properly maintain and operate the device.

If you encounter any issues while using the product, do not hesitate to contact us at info@prusa3d.com. You can also visit our help center at help.prusa3d.com or our discussion forums at forum.prusa3d.com.

	Caution, danger of electric shock.
	Protective grounding, terminal for connecting the protective ground wire
	This device is made up of components that need to be disposed of in accordance with the Waste Electrical and Electronic Equipment Directive.

Product Information

Name:	Original Prusa PDU
Manufacturer:	Prusa Research a.s., Partyzanska 188/7a, 170 00, Prague, Czech Republic
Contacts:	Phone: +420 222 263 718; Email: info@prusa3d.com
Device usage:	Indoor use only
Power supply:	100-240 VAC, 10 A max, 50-60 Hz
Protection class:	I
Ingress protection:	IP20 - protect against the ingress of water in any form
Operating temperature range:	18 °C - 38 °C
Maximum air humidity:	85 %, non-condensing

Product dimensions:	Width: 430 mm
	Depth: 62 mm
	Height: 75.5 mm
Weight:	1200 g

The product's serial number can be found on the type label located near the switch.

This device is intended for indoor operation, where it is protected against external influences.

Warranty

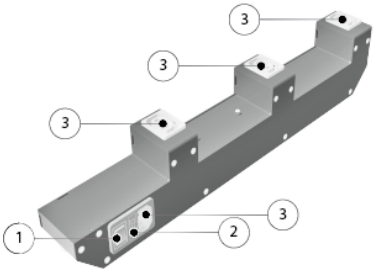
The Original Prusa PDU is covered by a 24-month warranty for end customers in the EU and a 12-month warranty for corporate customers. Consumable parts and parts subject to normal wear and tear are excluded from this warranty. The warranty period begins on the day the customer receives the goods. The seller is not responsible for damages caused by improper handling of the purchased product or damages resulting from handling that is contrary to the information and recommendations provided in the official manuals. The warranty also becomes void in case of unprofessional interventions and the use of unofficial hardware and software modifications.

Disclaimer

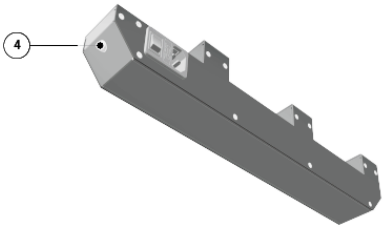
Actions contrary to the information provided in the manual may result in injury or damage to the Original Prusa PDU. Ensure that anyone working with the device is familiar with and understands the content of the manual. Since we do not have control over the conditions in which you operate the device, we assume no responsibility and expressly disclaim liability for any losses, injuries, damages, or expenses incurred or in any way associated with the handling, storage, use, or disposal of the product. The information in this manual is provided without any warranty, expressed or implied.

Exercise extreme caution when handling the Original Prusa PDU. It is an electrical device.

Description of important parts



1. Switch
2. Fuse holder
3. Connector



4. Screw terminal for protective conductor
5. Mounting hole