Craft Bot 3

THE SUPERVISOR

FILAMENT JAM DETECTION

DUAL EXTRUSION PRINT HEAD

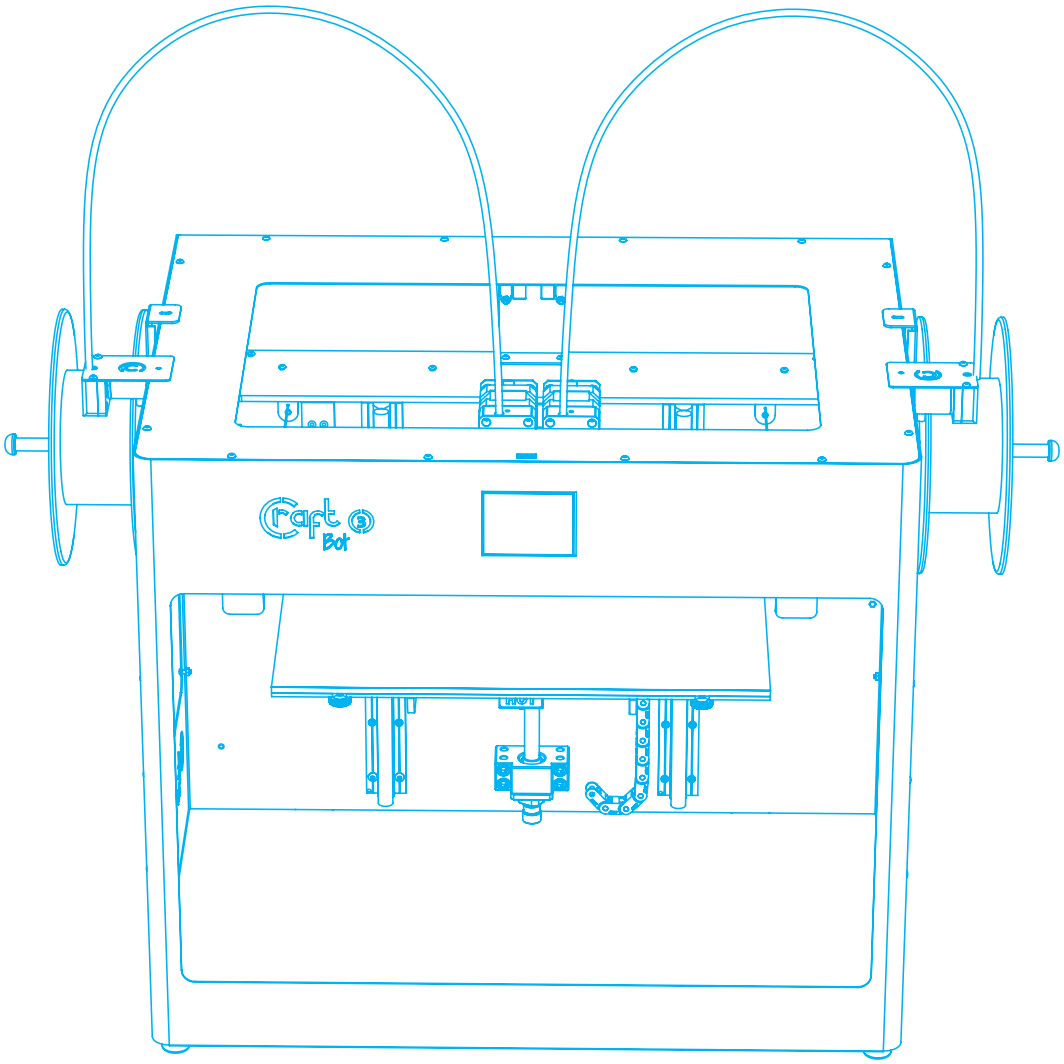
NEW MOTOR CONTROL FOR QUIET PRINTING

USER MANUAL

TABLE OF CONTENTS

INTRODUCTION

Congratulations on your purchase of the CraftBot 3D printer and welcome to the word of 3D crafting! At CraftUnique we believe that 3D printing opens a new window to enhance creativity. It offers outstanding crafting experience even without prior programming or 3D printing experience.
How does the printer work? The CraftBot 3D printer makes solid, three-dimensional objects out of melted plastic filament. Design Your objects with the help of a 3D design program. Then use the CraftWare program (downloadable from www.craftunique.com/craftware) to transform Your 3D design files into printing instructions for the CraftBot 3D printer. Transfer this to Your CraftBot 3D printer via USB drive or USB cable. The CraftBot 3D printer will melt plastic filaments and squeeze it out onto the building plate in thin lines to print your object layer by layer.



IMPORTANT

Read this user manual carefully before you use the appliance, and save it for future reference.
All information in this user manual is subject to change at any time without notice and is provided for convenience purposes only. CraftUnique reserves the right to modify or revise this user manual in its sole discretion and at any time. By using the manual, you agree to be bound by any modifications and/or revisions. For up-to-date information contact the CraftUnique Service Support (support@craftunique.com).

WARNINGS

- Check if the voltage indicated on the bottom of the appliance corresponds to the local mains voltage before you connect the appliance.
- Do not immerse cord, plug or main body in water or any other liquid. This may cause electrical shock.
- Do not use the appliance if the plug, the mains cord or the appliance itself is damaged or not operating properly.
- If the mains cord is damaged, you must have it replaced in order to avoid hazard.
- Only connect the appliance to grounded wall sockets.
- Keep the mains cord away from hot surfaces.
- Do not let the mains cord hang over the edge of the table or worktop on which the appliance stands.
- Keep the appliance and its cord out of the reach of children.
- This appliance can be used by children aged from 8 years and above; and by persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge only under supervision and adequate instruction concerning the use of the appliance in a safe way, understanding the hazards involved. Cleaning and user maintenance shall not be made by children.
- Children can receive great educational benefits from designing 3D objects, but the printing process should not be done by small children.
- Do not touch moving parts or heated elements, it can cause injuries.
- Never reach inside the machine when turned on. Different parts of the machine (mainly the extruder and heated build plate) operate at very high temperatures and can cause severe burns.
- Never leave the CraftBot 3D printer unattended while it is plugged in, and is in operation.
- Make sure that the power supply is off and that the power cord is disconnected before servicing. Allow at least 5 minutes for the device to cool down after unplugging it before reaching inside to service.
- Always turn off the printer and disconnect from the computer when it is not being used.

CAUTION!

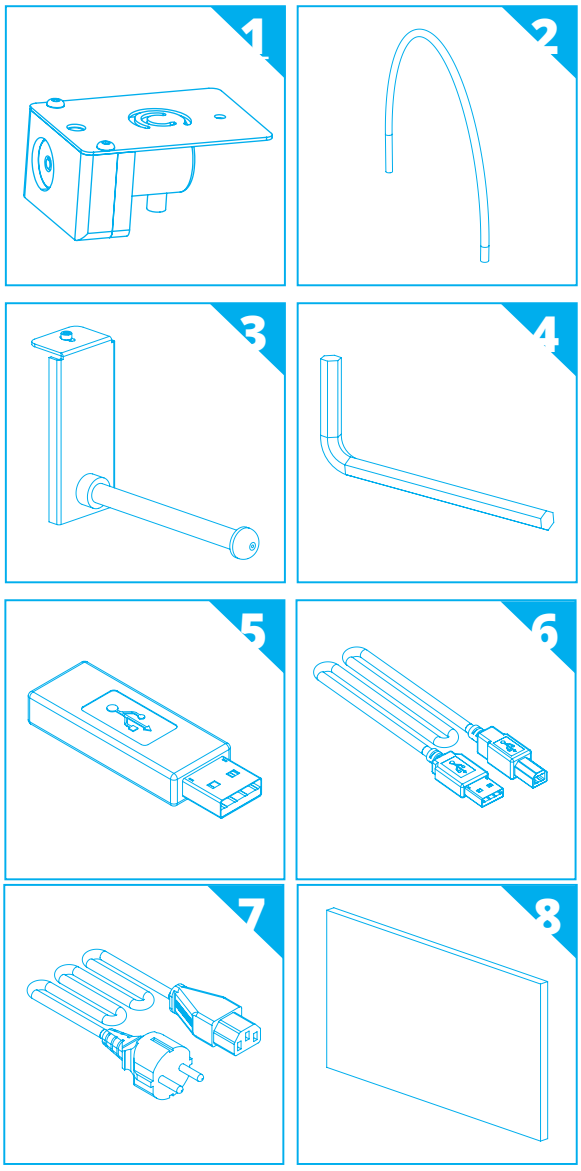
- Make sure to level the build plate properly before use.
- Make sure not to force anything, whether it be during unpacking, setup, operation or service.
- Service and oil the suggested parts as often as recommended. Use only substances recommended by CraftUnique.
- The CraftBot 3D printer melts plastic during printing. Plastic odors are emitted during this operation. Make sure to set up the CraftBot 3D printer in a well-ventilated area.

CONTENTS OF THE BOX

It's time to unpack additional parts. Below you can see contents of the box. First of all, check the list to make sure nothing is missing!

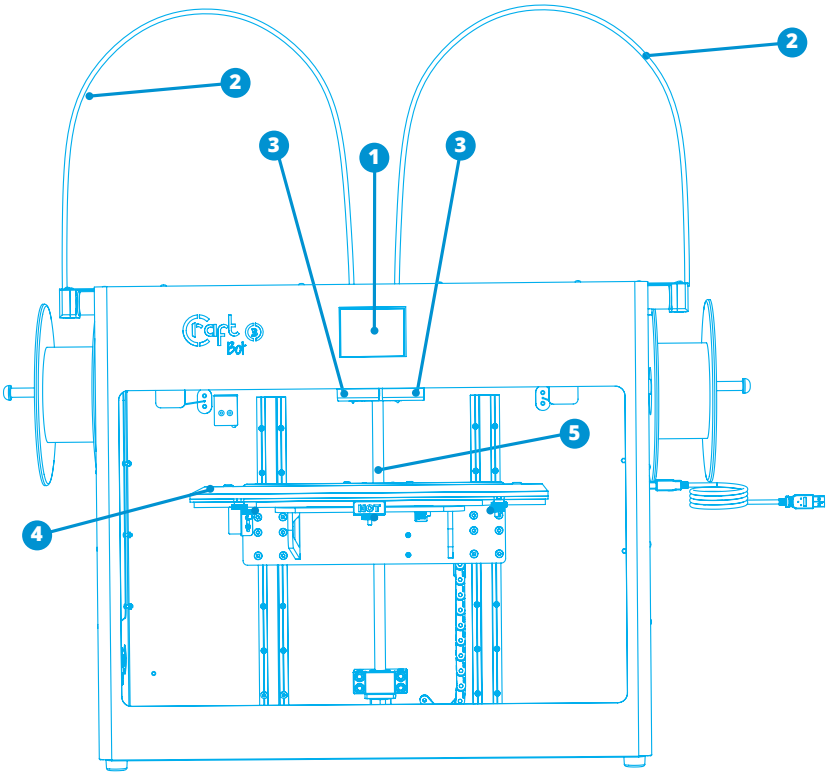
1. Filament encoder (2x)
2. Filament guide tube (2x)
3. Filament spool holder (2x)
4. Hex wrenches (5x)
5. USB Flash storage
6. USB A-B cable
7. AC power cable
8. Spacer card

You should also get 2 spools of PLA filament along with the box containing your CraftBot.

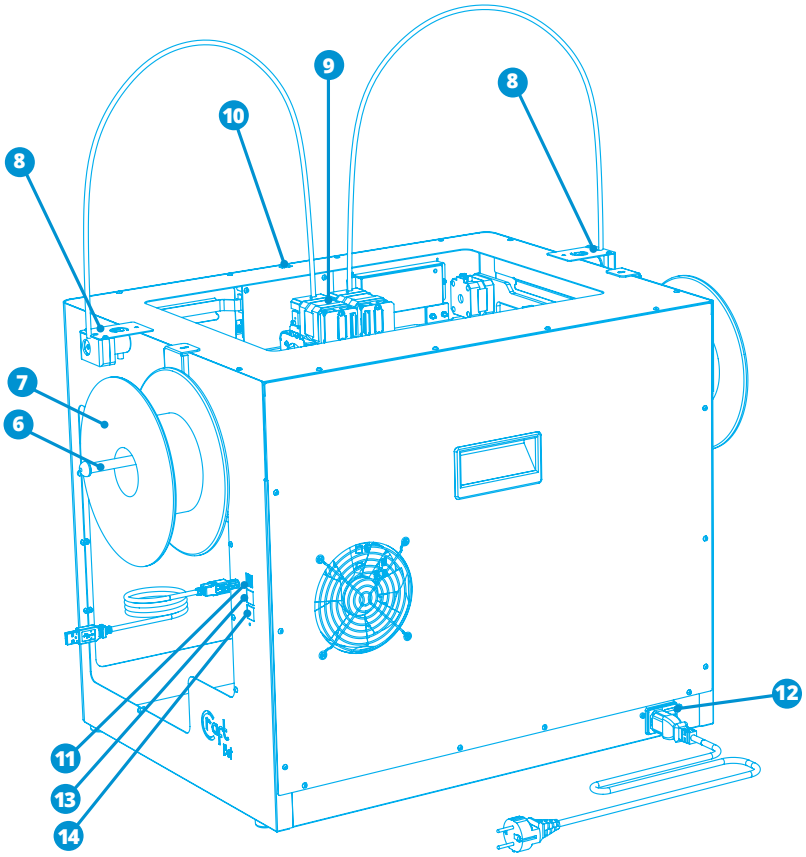


INTRODUCING THE CRAFTBOT 3D PRINTER

1. Touchscreen LCD display
2. Filament guide tube
3. Separated dual heads
4. Removable build plate
5. Leveling knobs



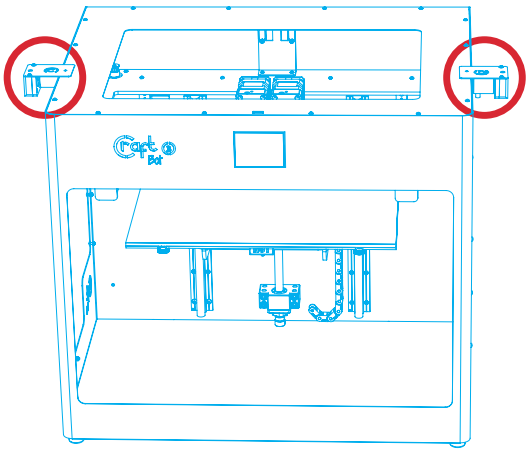
6. Filament spool holder
7. Filament spool
8. FMS encoder
9. Separated dual heads
10. USB for flash drive
11. USB for PC connection
12. AC power socket and ON/OFF switch
13. Encoder 1 connection
14. Encoder 2 connection



UNPACKING THE CRAFTBOT PRINTER

1. Place the CraftBot cardboard box on an even surface with open space around.
2. Open the box with care, avoid damaging the contents when using any tool, cutter.
3. Remove the protective cardboard cover. You will find the Quick Start Guide atop of the inner packaging.
4. The accessories (including a USB pen drive with copy of the CraftBot user manual) are placed in the upper foam tray. We suggest you keeping the accessories in a secure place, avoid losing any of them.
5. The CraftBot 3D printer is under the upper foam tray enclosed in a protective plastic bag supported with side foams to avoid any damage while shipping.
6. First remove the side foams then open the plastic bag.
7. Firmly grasp the frame of the CraftBot. Make sure not to touch the extruder or the electronic panel inside the device!
8. Consider its weight. Request physical help if needed. Lift the printer from inside the plastic cover and remove out of the cardboard packaging.
9. Place the CraftBot 3D printer on a stable and even surface with sufficient space around.
10. Remove the cardboard panel fixing the two heads inside the printer.

ASSEMBLING THE CRAFTBOT PRINTER

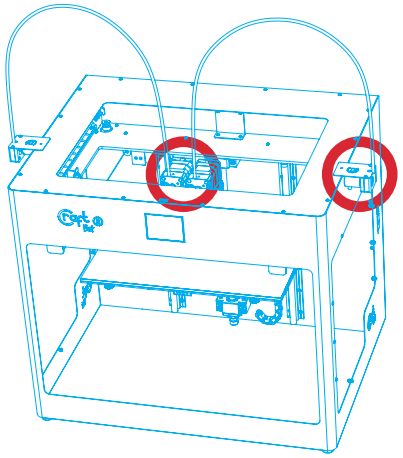


1. INSTALLING THE ENCODERS

- Select the desired position for the encoders. Choose their position so that the filament spool bracket fits beside them.
- Plug the connectors at the ends of the encoder cables into the encoder ports.
- When looking at the machine, the extruder on the left side is number 1, and the extruder on the right is number 2.
- The two encoder connectors are found beneath the USB connector on the side of the machine. The upper one is number 1 and the lower one is number 2.

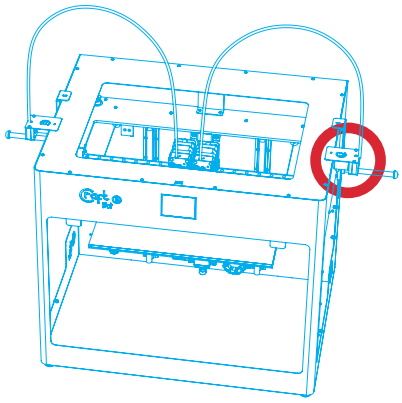
2. INSTALLING THE FILAMENT GUIDE TUBE

- Locate the filament guide tube.
- Fit the filament guide tube to the extruder and the encoder.



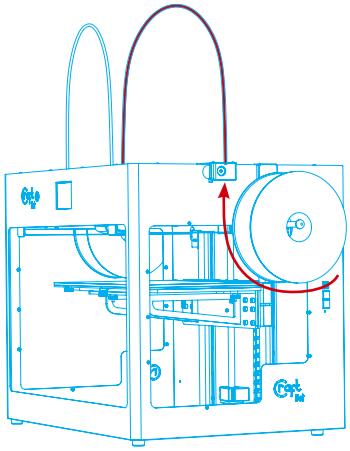
3. INSTALLING THE FILAMENT SPOOL HOLDERS

- Locate both of the filament spool holders.
- Using a hex wrench, install the filament spool holder next to the FMS encoder.



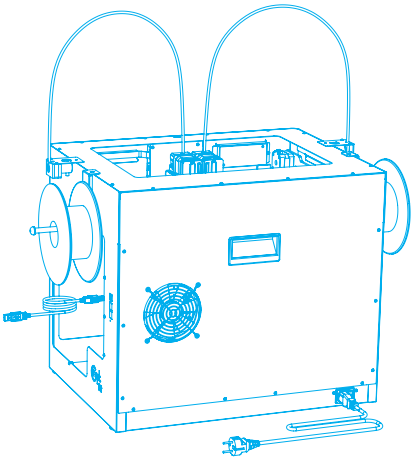
4. MOUNTING THE FILAMENT SPOOLS

- Fit both of the filament spools onto the filament spool holder so that the lead end keeps its course when the filament is fed into the guide tube holder.



5. ATTACHING THE POWER CORD

- Ensure that the power switch on the CraftBot is set to the OFF position.
- Find and then insert the AC power cord into the power input on the back of the CraftBot.



USING THE CRAFTBOT PRINTER

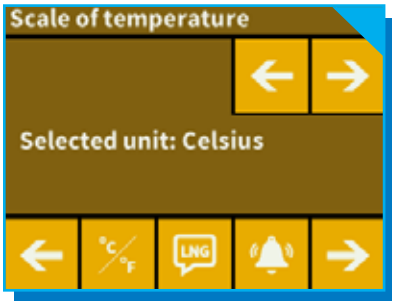
1. SWITCHING ON THE APPLIANCE

- Switch on CraftBot by the ON/OFF button located on the back part of the appliance.
- The LCD panel on the front will light up.

2. SETTING THE LANGUAGE

- Go to „Settings”
- Navigate to the right with the arrow.
- Choose LNG.
- Select the desired language.
- Confirm selection.
- Use the left arrow to get back to the main menu.

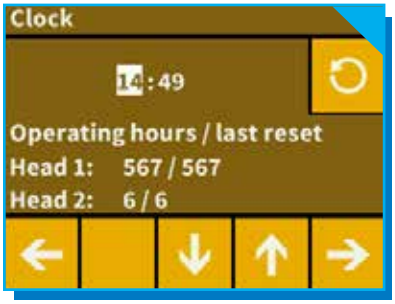
3. SELECTING THE HEAT MEASUREMENT



Temperature can be displayed in Celsius or Fahrenheit.

- Select „Settings” on the LCD menu.
- Navigate to the right with the arrow.
- Press the °C/°F button.
- By touching the button, the scale will change from Fahrenheit to Celsius and vice versa.
- Use the left arrow to get back to the main menu.

4. SETTING THE CLOCK

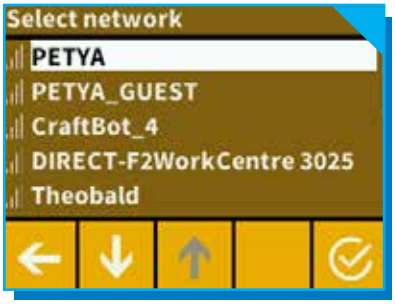


You can set the time and reset the operating hour counter. This function helps to track printing time between maintenance sessions.

- Select „Settings” on the LCD menu.
- Navigate to the right with the arrow.
- Press the Clock button.
- Set the time by using the up and down arrows. Switch between minute and hour by pushing the right arrow.
- Total operating hours are measured, it cannot be reseted.
- Counter can be reset by reset button, which helps tracking the elapsed time between the maintenance sessions.

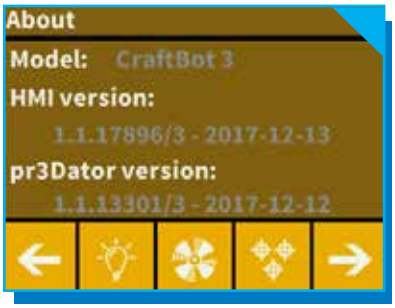
5. CONNECTING CRAFTBOT 3 TO A WIRELESS NETWORK

- Select „Settings" on the LCD menu.
- Navigate to the right with the arrow.
- Choose Wi-Fi.
- Select „search Wi-Fi network" icon – the left icon in the bottom row.
- Scroll down with up-down arrows. Select desired network with the left arrow.
- Enter password.
- Confirm password with the tick mark in right bottom corner.
- Selected Wi-Fi network is displayed indicating host name and LAN IP.

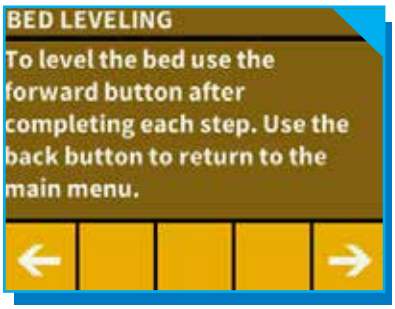


6. LEVELING THE BUILD PLATE

CraftBot has a leveling procedure which ensures that the extruder and the heated build plate are at optimal distance and they must be leveled evenly. Smaller gap or uneven levelling may lead to the damaging of the Kapton cover of the build plate or the extruder.

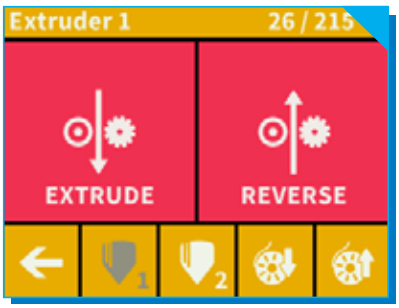


- Select „Settings" on the LCD menu.
- Select the Leveling icon – three crossed circles which represent the three knobs and screw.
- Follow the step-by-step instructions on the LCD screen:
- Turn all three black knobs holding the build plate all the way to the right until the springs in between have been compressed fully and the knobs begin to feel tight. (There is one knob at the front in the middle and two in the back left and right corners of the build plate). Do not force them!
- Locate the 0.3mm spacer card in the top foam among the other accessories. This card will ensure the optimal distance between the build plate and the extruder. Please keep it for future use as well.
- The preprogrammed leveling process will first set the front center point. Place the spacer card above the front center black knob on the build plate, then press the right arrow on the screen. Adjust the front center knob if needed based on the instruction on the screen.
- Repeat the process with the two back knobs. First the right back, then the left back knob will be adjusted.
- Before switching from knob to knob, please remove and replace the leveling card as necessary.
- Process is repeated twice to make sure that all 3 knobs are in the correct position.
- As a result, the building plate should be evenly calibrated.
- You can return to the main menu by pressing the right arrow.

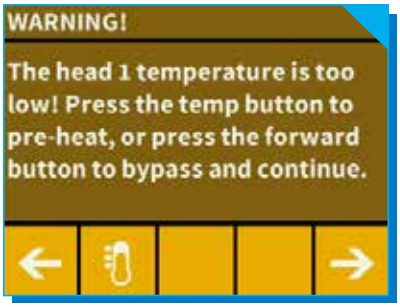


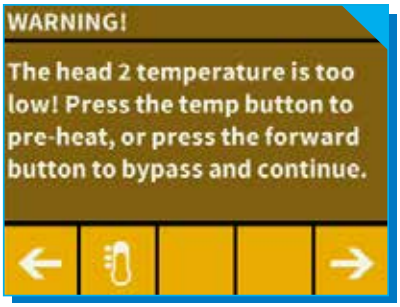
7. HEATING UP THE PRINTER

For printing or loading/unloading the filament, heat up the printer according to the type of the filament. On the main menu press the thermometer button.
At this point you will see a new menu indicating the “Head temp” and “Bed temp” . You can select the extruder icon and the bed icon (line with 3 wavy lines above) to commence heating. Once the extruder reaches the target temperature of your filament (keeping in mind that different materials such PLA, ABS, and PET have different temperature characteristics), you can start printing.



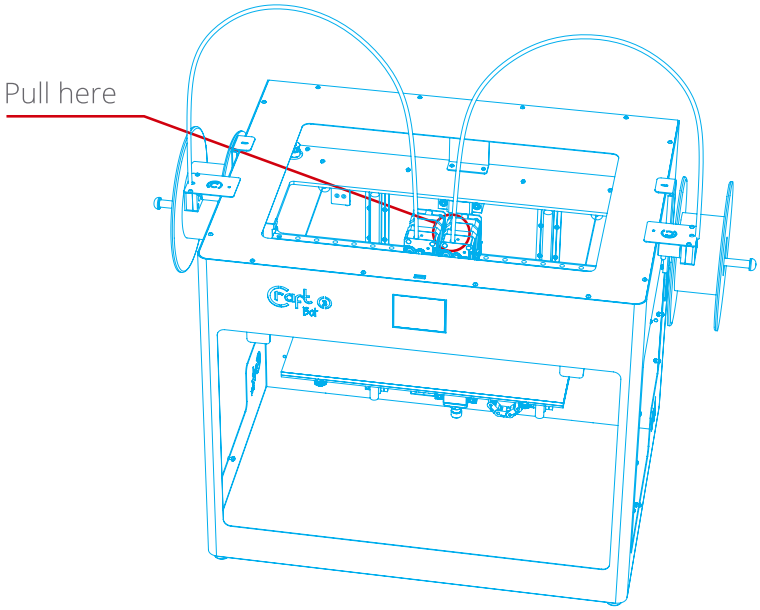
If the extruder heads is not hot enough yet, a warning message pops up. Select the thermometer icon in the bottom row which takes to the heat setting sections.



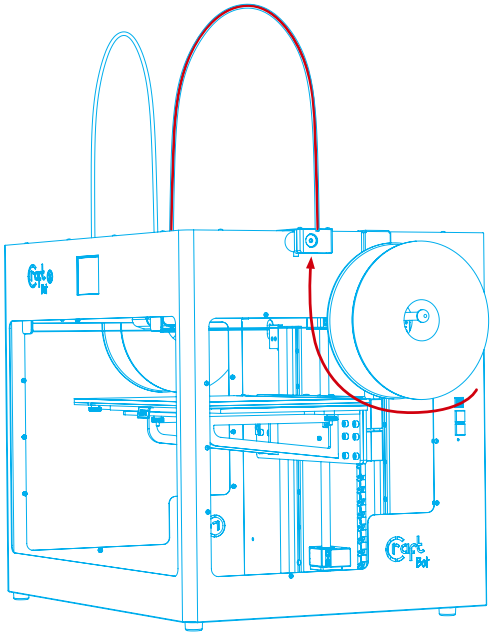


8. LOADING THE FILAMENT

1. Heat up the printer according to the 7th point.
2. Remove the filament guide tube from the insert hole on the top of the extruder.

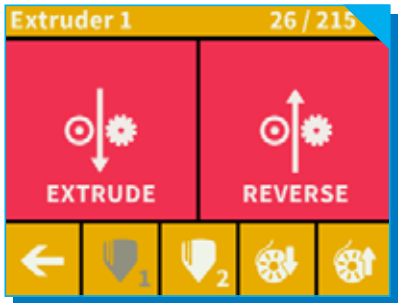


3. Insert the filament from the spool into the bottom hole of the filament FMS encoder. Make sure that the filament spool feeds toward the FMS encoder (from the bottom up) so that the filament keeps its course. This way you avoid any unnecessary bending of the filament. To have a clean edge, cut the end of the filament with scissors, if needed.



4. Enter into the extruder menu. Push the filament into the extruder hole, against the drive gear and press the extrude or load filament button on the screen. The load button will extrude 15 cm of filament automatically, this can be interrupted by pressing the back button.

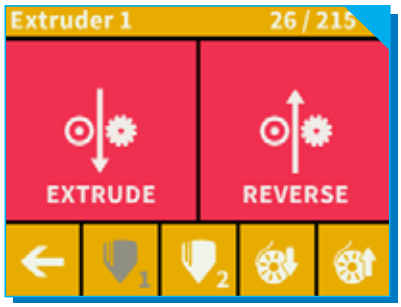
You can also use the “extrude” menu in the touchscreen to extrude filament out of the nozzle. Re-insert the filament guide tube back into the hole at the top of the extruder. The two heads and the build platform can now be set individually.



9. REMOVING THE FILAMENT FROM THE EXTRUDER

Never remove the filament from the extruder if the extruder is cold! Always preheat the extruder before removing or changing filaments. Removing the filament from a cold extruder might damage it! You don’t have to remove the filament between prints.

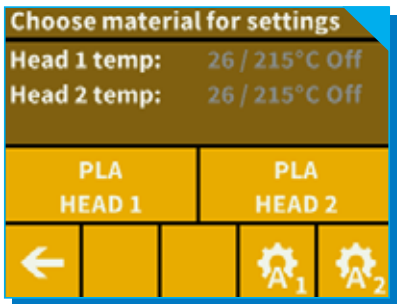
1. Heat up the extruder (see section 7)
   Press the unload button. This will automatically extrude a small amount of filament to prevent clogging and switch into reverse until filament removed from the extruder head.
2. Once the gears have begun to retract the filament you will be free to pull it out from the printer and then load a new filament.



10. FMS OPERATION

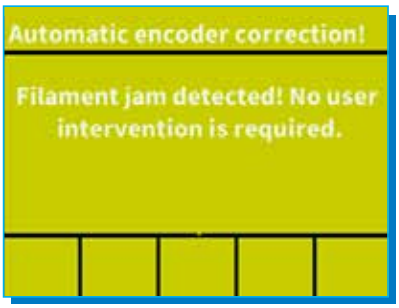
The filament monitoring system observes the filament flow during printing. If the printer detects a jam during printing, it will try to resolve it on its own. If it is unable to resolve the jam, then an error message will appear on the display, the message will appear in the application, and the printer will also send an email message. Please note, the wifi should be set up correctly first.

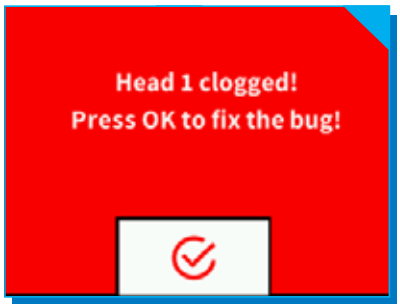
Calibration: Within the settings, touch the the encoder settings icon. Here you can view the status and see whether the function is turned on or off. You can change this with the first button. You can provide your email address with the @ icon, where the printer will send a message if it was unable to resolve a jam. Calibration can be initiated by touching the icon resembling an A over a cog. You can set the head temperature here. You can calibrate the appropriate encoder with the help of the first two icons. A test message can be sent after calibration so the user can check whether the email function is working. In addition to the email, a message will also appear in the application and on the FMS reporting.

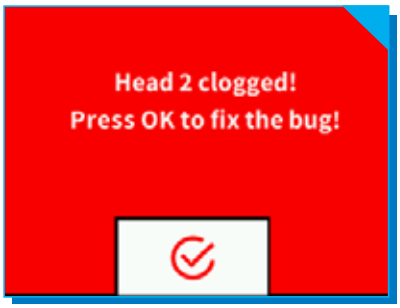


Automatic error correction process:

1. The printer enters paused status, the head goes to the pause position
2. It then retracts the filament, following which it attempts to extrude
3. Point two will be attempted three times
4. It will attempt to extrude 6cm of filament to determine whether extrusion will cause clogging again
5. If not, then printing will resume automatically. If it does, an error message will be sent
6. If the user has resolved the error, you can press resume printing to continue printing immediately.







11. DUAL HEAD CALIBRATION X-Y

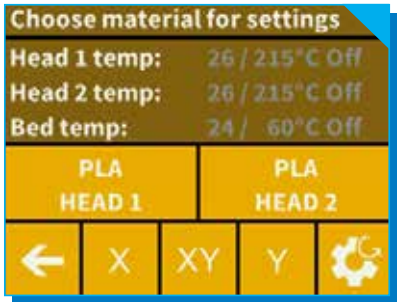
The X-Y axis must be calibrated so that the coordinate system of the two heads is completely aligned. So, if we send both heads to the same coordinates then they should be at the same point. This is important when we are printing an object with both heads, since if there is a deviation, the print will be misaligned; for example, if there is a gap between two materials or if the two materials are printed onto each other.

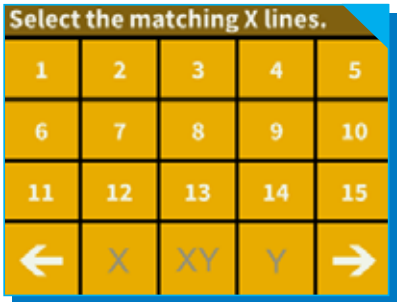
Calibration can be performed on the X and Y axes individually, or on both axes at once.

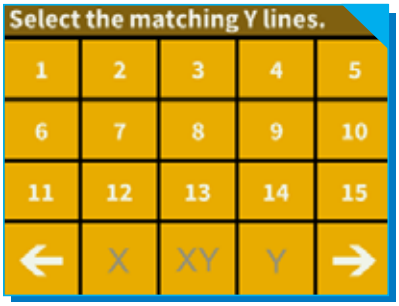
Calibration process:

1. The XY calibration menu option must be selected in the Settings menu (2 offset coordinate systems)
2. Head temperature must be entered (what material is threaded into the head: ABS-PLA)
3. Start calibration of the X, Y, or XY axes
4. The printer will print the calibration lines with both printheads. It will print the number 1 next to the first line.
5. The user must determine which of the lines printed by the two heads is aligned fully. This head's number must then be chosen from the display. In the case of the simultaneous calibration of both axes, the matching lines must be given first for the X, then for the Y axis.

It is advised that calibration on both axes is repeated until lines numbered 8 are fully aligned, since these are in the centre. The build platform must be cleaned before the start of each calibration.





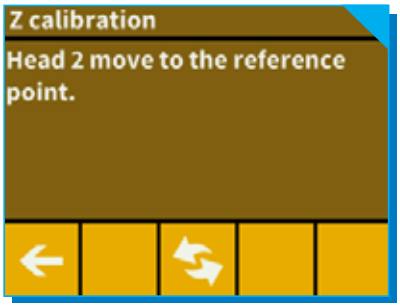


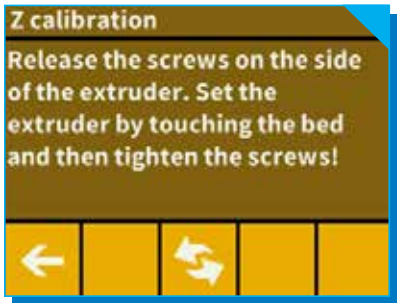
12. DUAL HEAD CALIBRATION Z

The Z axis must be calibrated so that the two heads are at the same height and are at the same distance from the build platform. If there is a height variation between the two heads, it will be visible on the printed object.

Calibration process:

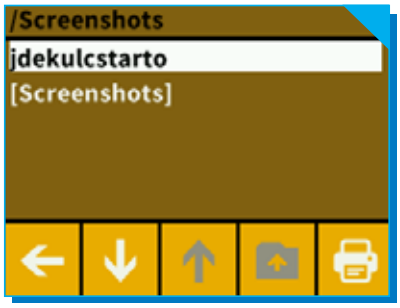
1. The Z calibration menu option must be chosen in the Settings menu (2 printheads)
2. The calibration must be initiated
3. When the first head has moved to the reference point, the build platform must be set so that the platform and the head are in contact, then press the change heads button
4. If the second head also moves to the reference point, then the two screws found on the side of the heat sink must be loosened, the head set to the level of the bed, and the two screws re-tightened.





13. PRINTING OBJECTS FROM THE USB FLASH DRIVE

1. Save the printing command file created by CraftWare slicer program on a USB flash drive. CraftBot 3 models have Wi-Fi connection and offer the option to upload gcode file using the CraftBot app mobile application. For details see chapter 17. The pendrive provided with CraftBot has design samples saved on it. (3D designs must be converted into a printing command file with the help of the CraftWare slicer software. For details on this go to chapter „Using CraftWare" or to www.craftunique.com/craftware)
2. Insert the USB drive into the USB slot located on the top front of the appliance (above the LCD screen).
3. Select the USB Print option from the main menu. CraftBot 3 users have the option to initiate a printing via the CraftBot app application. For details see chapter 17.
4. Scroll down with the arrow to select the object's file name.
5. Push the printer icon in the right corner.
6. The appliance will heat up the extruder and the build plate to the desired heat.
7. Printing will start if the required operational temperature is reached – until then you will see the in-print screen, with the status message: "Heating"
8. During printing the status of the print is displayed on the LCD screen, indicating progress, based upon a percentage of the job completed. For functions available during printing see chapter 16.



9. Please make sure that you have enough filament for the selected project. The quantity is precalculated by CraftWare.
10. After the object has been printed, remove the build plate. Printed object can be removed by gently pushing it aside with one hand while holding onto the printing plate with the other one.

14. CONFIGURATION OF COLORED LED STRIP

A custom colour can be set for each mode of operation.

Modes: idle, printing, heating, pause, print finished, error

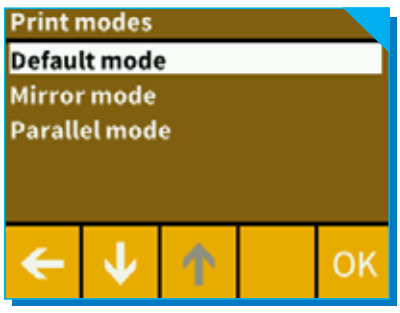
Colours may be set by touching the icon with three intersecting rings in the Settings menu. The operation modes will appear. You must then decide which you would like to set. Once you have made a selection, the colour of the operation mode may be set with the help of the RGB colour sliders and will immediately appear on the LED strip, so the current colour setting will be visible right away. Once you have set the desired colour, pressing the back arrow will save the current settings and return to the operation modes.

15. PRINTING MODES

1. Default mode: Gcode will determine whether the printer operates with one or two printheads. If an object was sliced for a single head printer, but contains a support struction, the CtaftBot 3 is able to print the object with normal filament while printing the support with PVA filament. The advantage to this is that you don't have to re-slice the existing gcodes if you also wants to print with PVA.

2. Mirrored printing: If an object fits on half of the build platform, then there is the option of printing two objects at once which will be mirror images of one another. This way, two objects can be made in time it takes to print one object. For example, if printing a hand, the printer can make a right and a left hand at the same time. If a symmetrical object is being created (a heart, for example), both halves can be printed at once and the entire object can be prepared in the time it takes to print half an object.

3. Parallel printing: If an object fits on half of the build platform, there is the option of printing two objects at once that will be completely identical. This way, two objects can be made in time it takes to print one object. The printer's productivity is therefore doubled.



16. IN-PRINT ADJUSTMENTS

During printing CraftBot displays the following information:

- Name of the file/object to be printed
- Head 1 & 2 and bed temperature
- Z position information
- Filament remaining/total
- Time elapsed/total

There are three options available from this menu: Tweak, Pause next layer, Pause (in order from left to right)

Tweak function menu

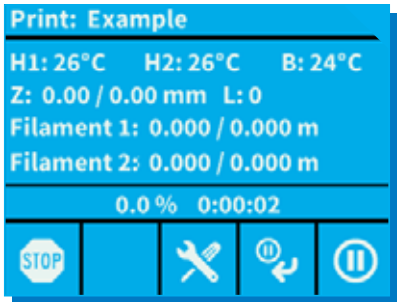
Tweak function enables to change temperature, print speed, extrusion ratio, lighting, object fan control settings.

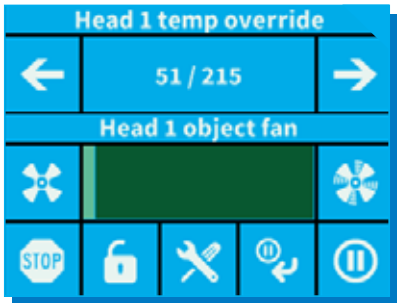
The in-print tweaks overrule the settings in the gcode.

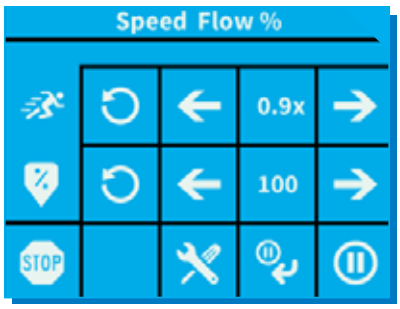
Temperature modification: Head and bed temperature can be changed
Flow modification: Print speed and extrusion volume can be modified in percentage ratio to the original. Use the reset button to change back the values of the gcode.
Light settings: Lighting within the appliance and the display backlighting can be changed
Object fan control: set the speed of the object fan. By default it is unlocked. If locked gcode can't overwrite setting information.

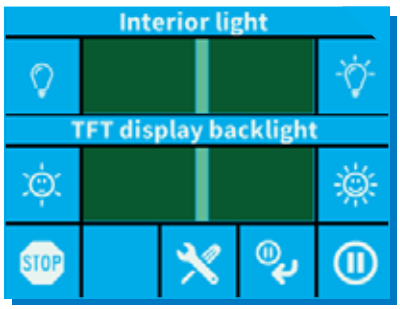
Pause Next Layer menu

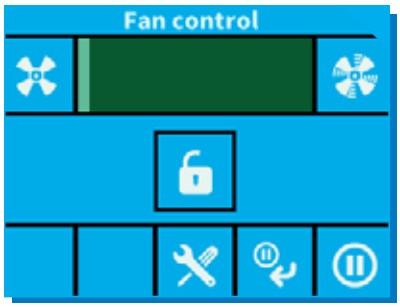
Pause next layer function will stop printing at the end of the current layer. Once the layer is finished, CraftBot will switch to Pause menu. This is a toggle button – when the icon is crossed out, it means that Pause Next Layer function is active. If pushed before layer is finished it will continue printing uninterrupted.

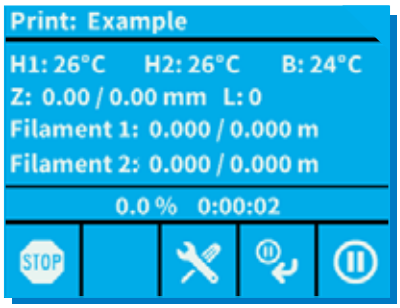




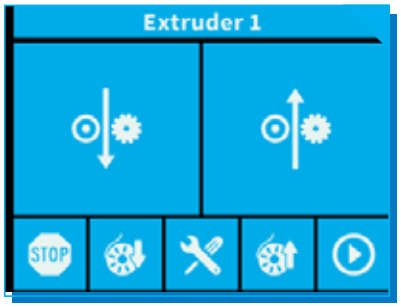








Pause menu



In Pause menu users can change filament, continue printing or terminate the printing project. Pushing the Play button will continue the printing. For filament change us the Extrude/Reverse functions or the preprogrammed Load/Unload options.
For terminating the printing select “STOP”. CraftBot will ask for a confirmation.
If you pressed the stop button accidentally, you can press the back button to continue the printing process.

17. MOBILE APPLICATION

1. Installing the CraftBot app and connecting to CraftBot 3
- Download the CraftBot app from the App Store or Play Store and open it.
- Make sure that your CraftBot 3 printer is switched on and connected.
- The app will search for CraftBot 3 in its reach (if there are more, it will find all and you can select the CraftBot 3 you would like to connect to)
- Select the printer to connect and you will be directed to the main screen.

2. Uploading a gcode to the USB placed in the CraftBot 3
- Select one of the gcodes on the main screen
- Select the gcode file saved on your mobile device
- Confirm the file selection – upload
- Once 100 % of the files is transferred, close

3. Initiating printing via the CraftBot app
- Select “Print” on the main menu
- Select from the gcode files uploaded onto the USB storage in the CraftBot 3
- Confirm the file selection – PRINT
- Track progress of printing on screen
- Printing can be stopped or paused

4. Changing CraftBot 3’s heat settings via the application
- From the main menu select “Heat Settings”
- Users can choose between settings for PLA, ABS or can tailor head and bed temperature settings according their need

App Settings

Users can specify how the heat and unit setup information is displayed (Celsius/Fahrenheit, Metric/Domestic)

18. NAVIGATING THE BUILD PLATE AND THE EXTRUDERS

Select the AXES on the menu.

The first “grey” button will, of course, return you to the main menu.

1. The small house icon indicates the „home” position of the extruders which is this location the front corners of the build plate. You can reset the extruders and the build plate to the “home” or “zero” position. You can either set each axis one at a time (X, Y or Z), or do all three of them at once by touching the appropriate button. If the individual house icons are white, then this means that the motors of each highlighted icon are engaged. To disengage the motors, click on the icon in the far right bottom corner (M with an X through it), and you will see all of the house icons turn grey. The motors have now been disengaged and you can freely move the extruders by hand if you wish to do so.

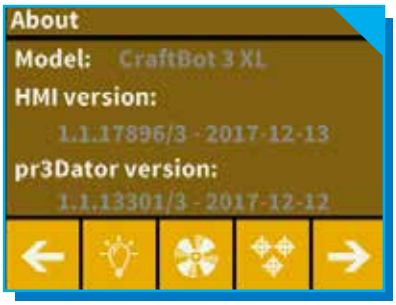
2. The directional button to the right of the “home” button can be used to move along the X, Y or Z axis using the motors. After clicking on this button you will be redirected to another display in which you will see six diffrent arrow buttons. Note that this option can only be used if all of the motors are already activated and the house icons are all white. If the house icons are grey, then nothing will happen. In this case, after clicking on the direction button, you will see all of the arrows in the color grey. To activate the motors, return to the “home” icon and home in; the house icons will now turn white and you can go on to the direction display and move the extruders and bed as you see fit.

If the individual house icons are white, then this means that the motors of each highlighted icon are engaged. To disengage the motors, click on the icon in the far right bottom corner (M with an X through it), and you will see all of the house icons turn black. The motors have now been disengaged and you can freely move the extruder by hand if you wish to do so.
The directional button to the right of the “home” button can be used to move along the X, Y or Z axis using the motors. After clicking on this button you will be redirected to another display in which you will see six different arrow buttons.

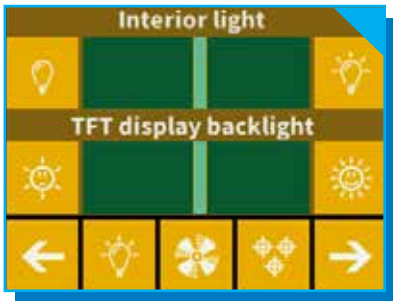
Note that this option can only be used if all of the motors are already activated and the house icons are all white. If the house icons are grey, then nothing will happen. In this case, after clicking on the direction button, you will see all of the arrows in the color grey. To activate the motors, return to the “home” icon and home in; the house icons will now turn white and you can go on to the direction display and move the extruder and bed as you see fit.

19. ADJUSTING THE LIGHTING

Select Settings on the LCD screen.



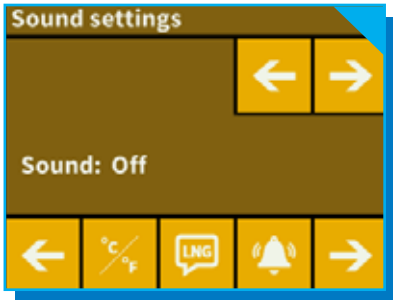
Select the light control icon by touching the light bulb button. You will see a variance pop up on the screen: two different touch-screen sliders.



Adjusting the lighting: Move the line from the left to the right to vary the brightness of either the interior LED lighting of the CraftBot or the LCD display backlighting.

20. SOUND SETTINGS

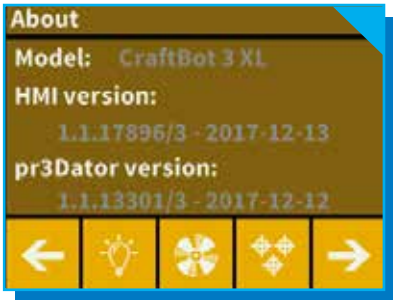
By using the arrows in the top right corner you can choose between 3 options: Sound On, Sound Off and Warnings Only.

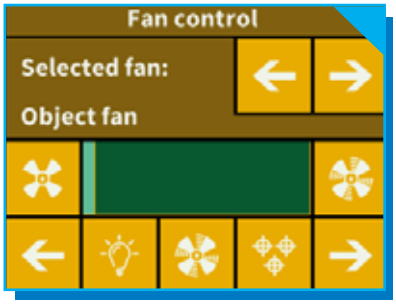


21. ACTIVATING THE FANS

CraftBot has five fans: object 1 fan, extruder 1 fan, object 2 fan, extruder 2 fan, case fan, dome fan.

- Select Settings on the LCD screen.
- Select the fan control icon.
- Switch between fans by pressing the fan icon. The name of the fan to be controlled is displayed at the top of the screen.





Fan Control: Activate and deactivate the fans before or during printing to match your preferences. Extruder and case fan settings automatically reset to default after 60 seconds.

22. USING CRAFTWARE TO CONVERT 3D DESIGN INTO PRINTING COMMANDS

To print a 3D object, CraftBot needs toolpath information generated from 3D object files like .obj or .stl. Toolpath information is simply called “gcode”. CraftWare software converts 3D designs into printing commands for the CraftBot 3D printer. CraftWare has been developed by CraftUnique with the aim of easing and perfecting the printing process.

1. Download the CraftWare slicer software

- Open a new browser session on the computer where you'd like to install CraftWare.
- Go to www.craftunique.com/craftware.
- Scroll down the page to select the latest version of CraftWare.
- Select the Windows or MAC/OSX version according to your operation system.
- Download the installer.
- Open the installer and follow the directions to install the software.

2. Open the CraftWare software

Once CraftWare has been opened up, you will see a virtual build platform which represents your CraftBot's real build plate. Please click on the ***Options*** button, and select your CraftBot 3 Printer under the ***Printer*** tab page.
You can add objects, .stl, .obj files onto this virtual build plate and get an impression of what the real life print will look like.

3. Select your desired Dual Head mode

By clicking on ***Dual Mode*** button you can change the Dual Head mode.
There are four of them:

- ***Dual Extruder Mode:*** you can assign an extruder for each object in the project.
- ***Support Mode:*** lets you select one of the extruders to create the support bars.
- ***Parallel Mode:*** duplicates the objects, and print them simultaneously.
- ***Mirror Mode:*** duplicates and mirror the objects, and print them simultaneously.

4. Importing your design objects

Click on the "Add" button located in the top row of icons. Select the 3D design plan you must print. The selected object will appear at the center of the virtual build plate. If ***Dual Extruder Mode*** is enabled, you can assign heads in the ***List View*** under the ***Selection*** tool.

5. Generating the toolpath information (gcode)

Click on the ***Slice...*** button to the right side of the screen. A new screen pops up with options to specify the printing quality and material to be used.

6. Saving the gcode

Save the generated gcode onto a USB drive or send information directly to CraftBot if connected via USB cable or transfer it via the CraftBot app application. For detailed user's instruction of CraftWare, download the user manual from https://craftunique.com/docs/craftware-user-manual

23. CLEANING AND MAINTENANCE

IMPORTANT! Cleaning and lubrication should only be conducted while the extruder and built plate are cold. Please allow the CraftBot 3D printer to cool down at least 30 minutes before cleaning or maintenance.

CLEANING

Clean the metal housing of the CraftBot by wiping with a damp cloth.

Cleaning the build plate
Remove the build plate by unscrewing the 2 white screws located in the front of the plate. Clean the plate with window cleaner. Wipe clean with a dry cloth or paper towel.

LUBRICATING

The CraftBot printer should be lubricated at least once after every 50 hours of use or every 6 months.
Tools needed for lubrication:

- PTFE based spray lubricant or grease
- 2 separate lint-free rags or thicker stronger paper towels
- personal protection such as gloves and safety glasses/goggles
- lighting to see the interior of the CraftBot correctly (lamp)

1. Move the build plate and the extruder to the „Home" position – see chapter 13 for more information.
2. Once the extruder and bed are in the home position, turn the CraftBot printer off and unplug it from the electrical outlet.
3. If you look beneath the build plate you will see three rods that run vertically in which the build platform moves up and down on. The two outside rods are smooth and the center rod is threaded. These three rods are known as the "Z-axis rods".
4. Place a folded paper towel or a lint-free rag behind the center rod. This rag is used to protect other areas of the printer from any overspray that may occur.
5. LUBRICATE ONLY THE PARTS RECOMMENDED IN THIS MANUAL!
6. Spray the threaded Z-axis rod at a relatively close distance to reduce overspray. Make sure the lubricant reaches the inside of every thread (if using grease, spread with hand wearing gloves).
7. Make sure not to overlubricate, spray only the minimum required amount!
8. Do not spray the other two rods directly! Spray the towels and wipe it onto the rods.
9. Remove the rag from the CraftBot interior.
10. Plug in and power up the CraftBot and move the build plate to the lowest point ("Axes" menu, home position and then go to the directional menu and press the Z down arrow until the bed reaches the lowest point).
11. Turn the CraftBot printer off and unplug it from the electrical outlet.
12. Place a second clean rag on top of the heated build plate to protect the components and Kapton from any overspray.
13. Repeat the process for the top side of the Z-axis rods the same as you performed on the bottom side: protective rag behind threaded rod, spray, wipe excess lubricant on other two outside rods.
14. Power up the CraftBot once again and raise the build plate back up to the highest position (set the X, Y and Z to the home position).
15. Turn the CraftBot printer off and unplug it from the electrical outlet.
16. Wipe any excess lubricant off from the bottom side of the Z-axis rods.
17. Power up your CraftBot once again and move the build plate back to the lowest point.
18. Turn the CraftBot printer off and unplug it from the electrical outlet.
19. Wipe any excess lubricant off from the top side of the Z-axis rods.
20. Power up the CraftBot once again and raise the build plate back up to the highest position.
21. Turn the CraftBot printer off and unplug it from the electrical outlet. The motors will now disengage so that you can move the extruder freely by hand.

22. Use an oiled rag to lubricate the X and Y linear rails. Do not spray from above! Move the extruders back and forth by hand to both extremes of the axes. When the extruders moves absolutely smoothly you are finished.

24. TROUBLESHOOTING

PREVENTING/FIXING A CLOGGED EXTRUDER

The number one inconvenience that you will run across when 3D printing is clogging of the extruder. But we have good news for you! This problem can be easily avoided by following a few simple rules of "3D printing etiquette".
First, always wait until the extruder and heated build plate are fully heated to their maximum intended print value before inserting the filament. Inserting the filament at a lower temperature is just asking for a clog.
When unloading or changing the filament: always heat up all the way first and then "extrude" for 5 seconds and immediately "reverse" aiding the filament retrieval by pulling a little bit on the filament end going into the extruder with your hand.
If the extruder is clogged, clean out the passage way of the extruder. You can use one of the small hex wrenches coming with your CraftBot to do so. Heat up to 250°C while the extruder is empty and push any excess filament out by plunging the hex wrench down into the passage way; make sure to do adequately but not in a violent way which would damage the machine, and always take precautions because the extruder is very hot!
It is especially important to clean out as much old filament leftover between using different filaments, as the different characteristics of the filaments' properties (even printing the same material in a different color) can cause clogs from inconsistencies. For example: you must heat up to 250°C to clear out any extra ABS before using PLA.
Clogging is the most common problem in every 3D printer and cannot be prevented 100%, but if you follow these simple steps you will prevent 95% of occurrences.
If you still cannot clear the passage with just this method, you may want to move onto the next method by following these next steps to actually remove the nozzle itself...

Removing the nozzle

To clean out the extruder properly by removing the nozzle you will need to remove the nozzle whileheated up to 250°C using both a 7mm and 20mm wrench for the two nuts located on the nozzle itselfand the hot block of the extruder, under the red silicone insulator. Make sure to use an oven mitt (for example) to protect yourself from burns. You will also need to disconnect the fan assembly and remove the entire piece by unfastening four bolts connecting it to the side of the extruder.Most importantly, make sure to hold the hot block part stationary at all times so that you do notdamage the wires running into it, you can use a wrench to do so. Please make sure that none of thewires are disconnected! The removed nozzle can be unclogged with a pin or replaced with a new one.

25. FIRMWARE UPDATE

For a step-by-step process on how to update to our newest fimware, please check the following link:http://craftbot.com/fimware-updateFrom time-to-time you may encounter a traffic jam scenario when attempting to upload this newfimware; in some cases your CraftBot's screen will go completely blank and even seem to be „nonfunctional"... but do not worry! This situation can be easily remedied by

following these easy steps to fix your machine.

Take a look at your LCD display located at the middle top front of the CraftBot 3D printer. You will need to get around to the back of the LCD to erase. The „erase" button located on the bottom right corner of the LCD. Switch off your machine. Wait 10 seconds. Press and hold the „erase" button on the LCD, while powering up your printer. Wait 5 seconds, and switch off your printer.

For the controller PCB erase, while your printer is still switched off, use a piece of filament to insert into the „erase" hole which is located on the side of the printer, under the USB / Encoder connectors.
Press and hold the button with the filament, while powering up your printer. Wait 5 seconds, and switch off your printer. Now both controller boards are erased. At this point the screen should still be blank and your CraftBot should still be unresponsive. From this point proceed to the fimware update mentioned previously and after uploading you should have a 100% operational CraftBot 3D printer!

26. APPLYING A NEW LAYER OF PROTECTIVE KAPTON SHEET TO YOUR BUILD PLATE

Build plate Kapton sheets get worn out in time, or can be damaged by the nozzle due to incorrect leveling. Reapplying a new Kapton sheet is essential to maximize print qualities if the old one has issues. To reapply a new Kapton sheet, take the build plate out of the machine and remove the old sheet by striping it off of the aluminum plate. Clean the surface of the aluminum plate with acetone. Remove the protective sheet on the new Kapton in order to apply the sticky side, apply some window cleaning liquid onto the plate and the sticky side of the sheet to help you to correctly position the sheet. Align the Kapton to the front side of the plate (the side where screws stick out) on the corner. Once the positioning is correct, squeeze out the liquid from between the plate and the sheet with a thin but solid object, like an unused credit card. Place the protective sheet (which was removed to open up the sticky part) on the building Kapton to prevent scratches and damages during application. Start from the center of the plate and move horizontally and vertically. Once all the liquid has been squeezed out and the sheet is applied properly, put the plate somewhere to dry. Allow the sticky part to rest for a day before using.

27. GUARANTEE

For special conditions relating to product guarantee, see the „Guarantee Statement" on a separate sheet, delivered with the product as well.

28. LIMITATION OF LIABILITY

With the exceptions included in the regulations concerning the guarantee and to the greatest extent permitted by the relating act, CRAFTUNIQUE Ltd. is not responsible for any direct, indirect, specific, stochastic or consecutive damage claims which are stem from the breaching of the terms of guarantee, respectively any other legal theory, included, but not limited to

- the loss of usability
- the loss of income, the loss of actual or expected profit (including the profit from contract), the loss of expected saving, loss of business, loss of opportunity,
- the loss of a fair name and injury to a fair name,
- the loss, injury or perishing of data,
- any indirectly or consecutively caused damage or loss, including the damage caused by the changing of equipment/installation or property, respectively
- the cost of the restoration or reproduction of data stored or used on the Product.

The restriction above does not refer to CRAFTUNIQUE Ltd.'s legal liability for intentional, serious negligence and/or default.
Certain jurisdictions does not allow the exclusion or limitation of accidental or consecutive damage, therefore if such jurisdiction regulates the guarantee, the restrictions above does not refer to You.

APPENDIX

PRINTING	
Printing technology:	Fused Filament Fabrication (FFF)
Build height:	25 cm
Total printing area:	37,4 x 25 x 25 cm
Printing area - dual printer head:	27 x 25 x 25 cm
Printing area - single printer head:	32,2 x 25 x 25 cm
Multi-part printing:	18,7 x 25 x 25 cm
Layer resolution:	50 micron (with 0.25 mm nozzle)
Position precision:	X,Y: 4 micron; Z: 2 micron
Filament types:	PVA, PLA, ABS, HIPS, PET, Nylon, etc.
Filament diameter:	1.75 mm
Nozzle diameter:	0.25-0.8 mm
Print speed:	50-200 mm/s
Wireless connection:	802.11b/g/n
Power consumption:	cca. 350W

PHYSICAL DIMENSIONS	
Frame dimensions:	x: 57 cm
	y: 44 cm
	z: 48,8 cm
Shipping box:	x: 70 cm
	y: 58 cm
	z: 66 cm
Weight:	32 kg
Shipping weight:	36 kg

USEFUL ACCESSORIES AVAILABLE IN OUR WEBSHOP:

PLEXIGLASS DOOR + PETG DOME COVER
- prevent kids from reaching inside
- keeps the heat and fumes inside
- can be locked
- shock-resistant plastic dome
- dome comes equipped with an activated carbon and HEPA filter

PERFORATED BUILD PLATFORM
- ensures better adhesion

TEMPERATURE	
Ambient temperature:	15-32 °C
Storage temperature:	0-32 °C
Operating nozzle temperature:	180-300 °C
Operating heated build plate temperature:	50-110°C

SOFTWARE	
Software package:	CraftWare
File types:	OBJ/STL/CWPRJ
Supports:	Windows 7 and above, OS X and Linux

PRODUCT NAME
CRAFTBOT3

COLOR
Gray

GET IN TOUCH!

Headquarters/Office: CraftUnique Ltd.

Address Salgotarjani str. 12-14. Budapest 1047, Hungary
Phone +36 30 339 5000
Email info@craftunique.com

CraftBot is made in the EU.

USA Sales Office: CraftUnique LLC

Address 1414 S Sangre Road Stillwater, OK 74075, United States
Phone +1 817 733 5187
Email andrew.zambrowski@craftunique.com