PD-KLP-USA-1

PRINTDECK

INSTRUCTION BOOKLET

For the Printdeck touch screen and Klipper printers



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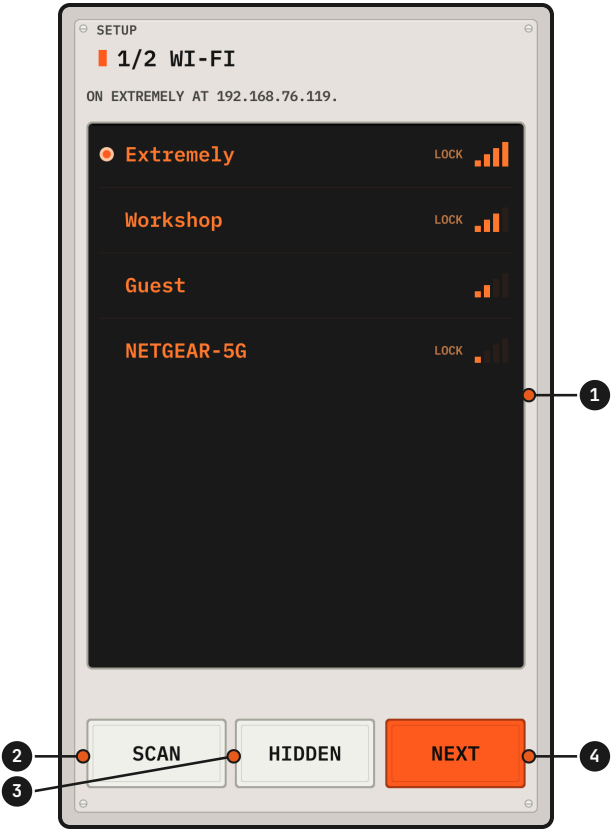
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Connect to Wi-Fi

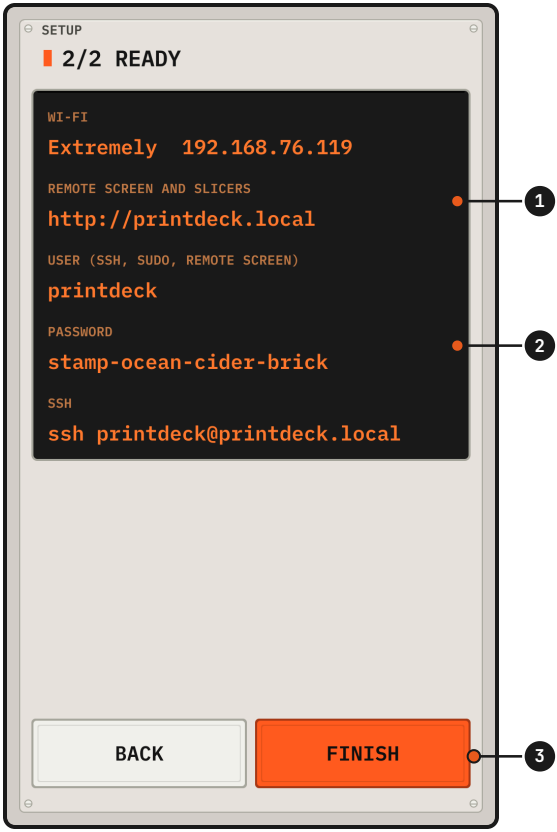
1. Switch on the Printdeck. The setup opens.
2. Tap your Wi-Fi network, then type its password.
3. Wait until the deck is connected, then tap Next.
4. Write down the address and the password, then tap Finish.

The setup: step 1



1. **Networks.** Tap your network, then type its password.
2. **Scan.** Scans for the networks again.
3. **Hidden.** For a hidden network: type its name and its password.
4. **Next.** Goes to the summary when the deck is connected.

The setup: step 2



1. **Address.** The address of the deck. Open it in a browser.
2. **Password.** The password of the web pages. Machine > Wi-Fi and help shows it again.
3. **Finish.** Closes the setup. The setup shows only at the first start.

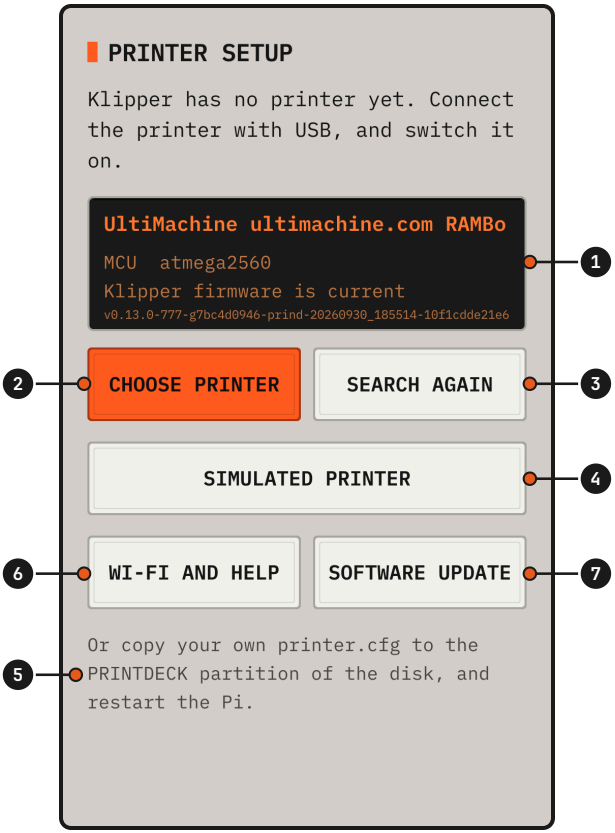
> To set the Wi-Fi before the first start, put the SD card in a computer. Fill in printdeck.txt on the PRINTDECK partition.

Choose your printer

A new Printdeck has no printer config, so it shows the printer setup.

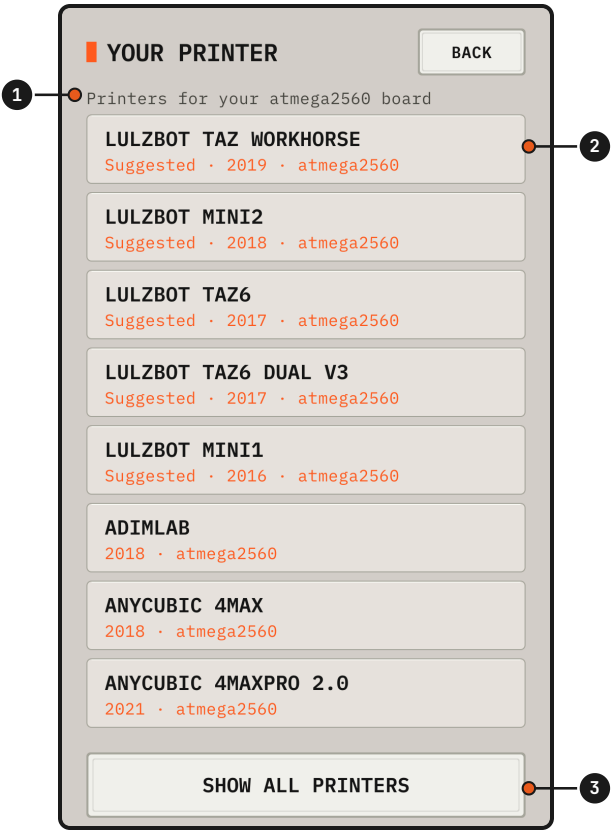
1. Connect the printer to the Printdeck with a USB cable, and switch the printer on.
2. Wait until the deck finds the board. If the board is missing, tap Search again.
3. Tap Choose printer. The printers of the brand of your board are at the top.
4. Tap your printer, then Use. Klipper restarts with its config.

No printer yet



1. **Board.** The board on USB and its firmware.
2. **Choose printer.** Opens the list of Klipper example configs.
3. **Search again.** Looks for the board again.
4. **Simulated printer.** Runs a simulated printer, with no real printer.
5. **Your own config.** Or copy your printer.cfg to the PRINTDECK partition, and restart.
6. **Wi-Fi and help.** The network, the address and the password.
7. **Software update.** Installs a new version. It can fix the problem.

Choose your printer



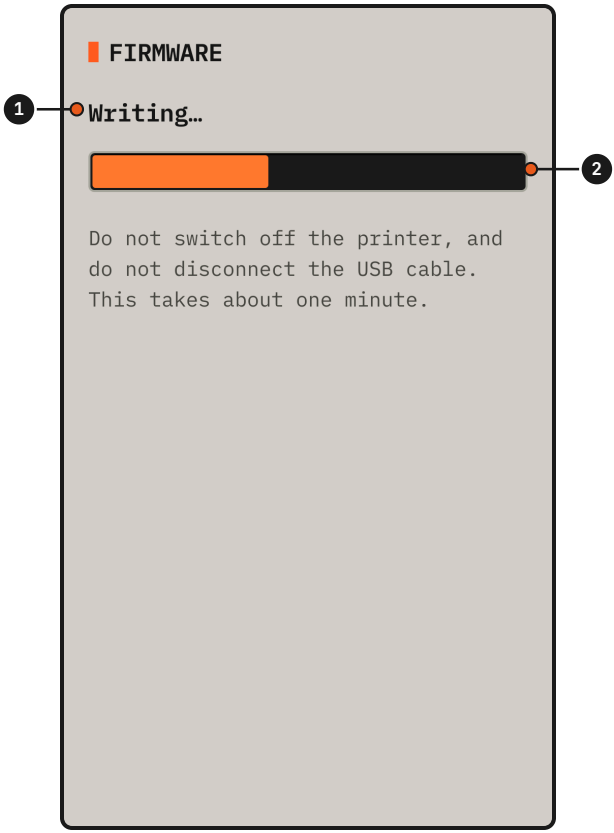
1. **Chip.** The printers with the chip of your board.
2. **Printer.** Tap your printer. The deck writes printer.cfg and restarts Klipper. The old file stays as printer.cfg.bak.
3. **Show all printers.** Shows the printers for all chips.

Install the Klipper firmware

The printer board must run the Klipper firmware of this Printdeck.

1. Open Machine, then Maintenance, then tap Firmware. A new board shows Install Klipper firmware on the setup screen.
2. Tap Write. Keep the printer on until the deck shows the result.
3. Tap OK. Klipper restarts and connects to the board.

The firmware flash



1 **Step.** Starting the bootloader, Writing, then Checking.

2 **Progress.** The part of the firmware that is done.

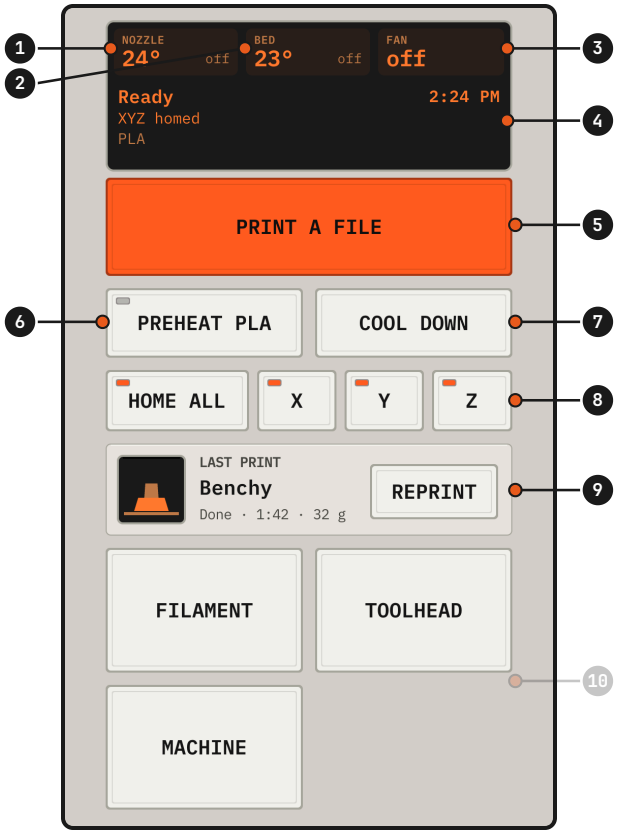
The deck stops Klipper, writes the firmware, checks it, and starts Klipper again. Printdeck flashes atmega2560 boards with an STK500v2 bootloader, for example RAMBo and RAMPS.

The deck

The deck shows the idle screen when no print runs. A key with an LED is on while its LED is lit. A key with no LED does an action.

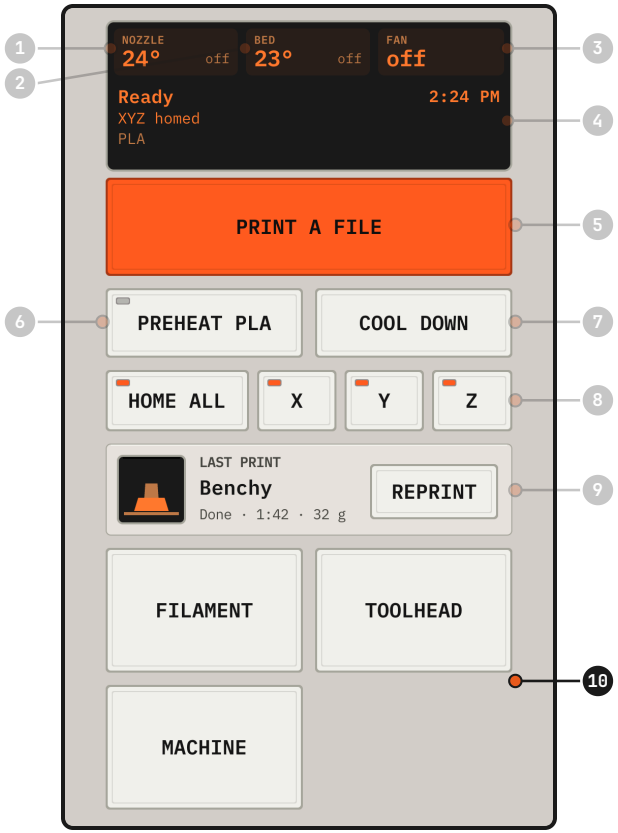
The status panel is at the top of each screen. The page keys are at the bottom of the idle screen. Each page has Back at the top and its actions at the bottom.

The idle screen



1. **Nozzle.** The nozzle temperature and its target. Tap it to set the temperature.
2. **Bed.** The same for the bed.
3. **Fan.** The part cooling fan. Its blades turn at its speed.
4. **Status.** The head position, the printer state, the loaded filament and the clock.
5. **Print a file.** Opens the files. See Files.
6. **Preheat.** Heats the nozzle and the bed for the loaded filament. Tap it again to turn them off.
7. **Cool down.** Turns off both heaters.
8. **Home all, X, Y, Z.** Homes all axes, or one axis. A lit LED shows a homed axis.
9. **Last print.** The last print and its result. Reprint starts it again.

The idle screen (more)



10 **Pages.** Filament, Toolhead and Machine.

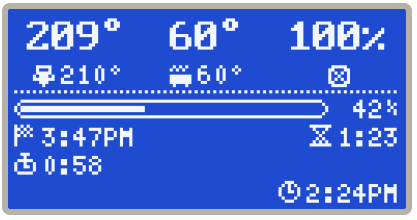
The display of the printer

The deck draws the printer display. The display shows the same status as the deck.

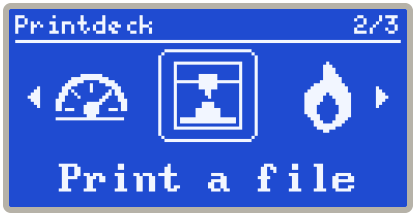
Turn or click the knob to open the menu. The menu has the same pages and keys as the touch screen. A click taps the key. The top item goes back, and a long click also goes back. After 20 seconds with no turn, the display shows the status screen again.



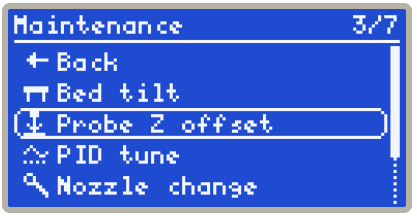
THE STATUS SCREEN



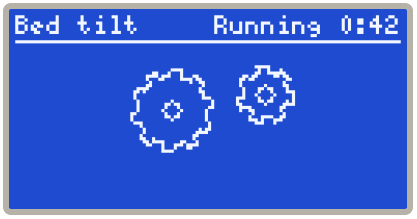
DURING A PRINT



THE HOME MENU: TURN THE KNOB TO CHOOSE



A PAGE: MAINTENANCE



AN ACTION RUNS

The deck in a browser

Open http://printdeck.local in a browser on the same network. Log in with the password of the deck. The browser shows the screens of the touch screen. Each browser has its own screens.

On a phone, tap Add to Home Screen. The deck then opens as an app.

The page http://printdeck.local/system shows the version, the logs and the API key for slicers. It also installs an update file, and makes a backup. See Back up your data.

Send a file from the slicer

The deck uses the OctoPrint API, so slicers can send files and start prints.

Cura: add the deck with the OctoPrint Connection plugin. The deck asks "Allow Cura to use the Printdeck?". Tap Allow.

OrcaSlicer or PrusaSlicer: add a printer of the type OctoPrint, with the address http://printdeck.local and the API key of the system page.

The webcam is the camera with the use Apps: http://printdeck.local/webcam/stream and /webcam/snapshot, with the API key. Add camera=2 for the second camera, w=320 for smaller pictures, or fps=2 for fewer frames. With no camera, the webcam shows the deck screen.

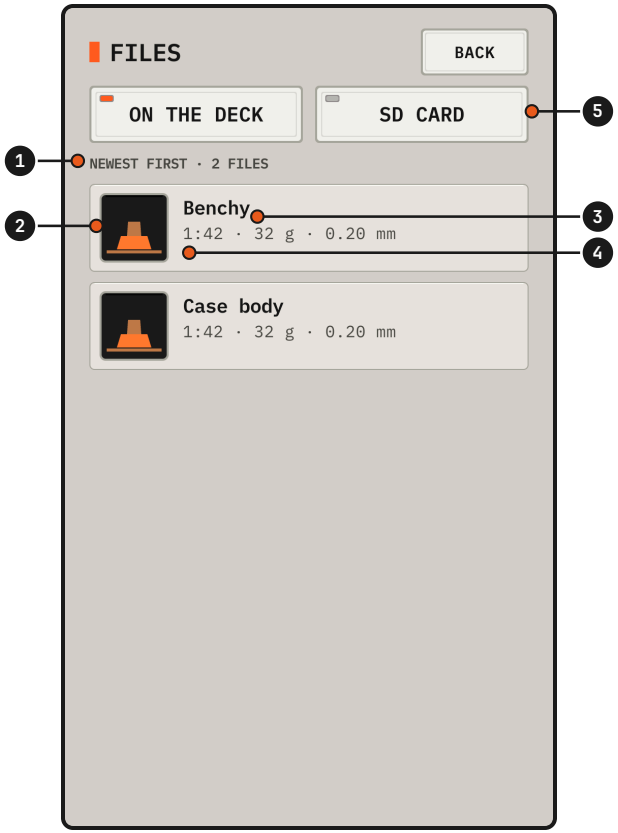
Start a print

The newest file is at the top. Each file shows the print time, the filament and the layer height from the slicer. Cura, PrusaSlicer, OrcaSlicer and Bambu Studio write this data.

The deck shows the name of the print. The Printdeck plugin for Cura writes it in the file. For a file from another slicer, the deck removes the printer prefix and the version from the file name: TAZWH_hex_planter_v3.gcode shows as Hex planter.

1. Tap Print a file on the idle screen.
2. Tap the file. Check the print time, the filament and the temperatures.
3. Tap Print, then Print again.

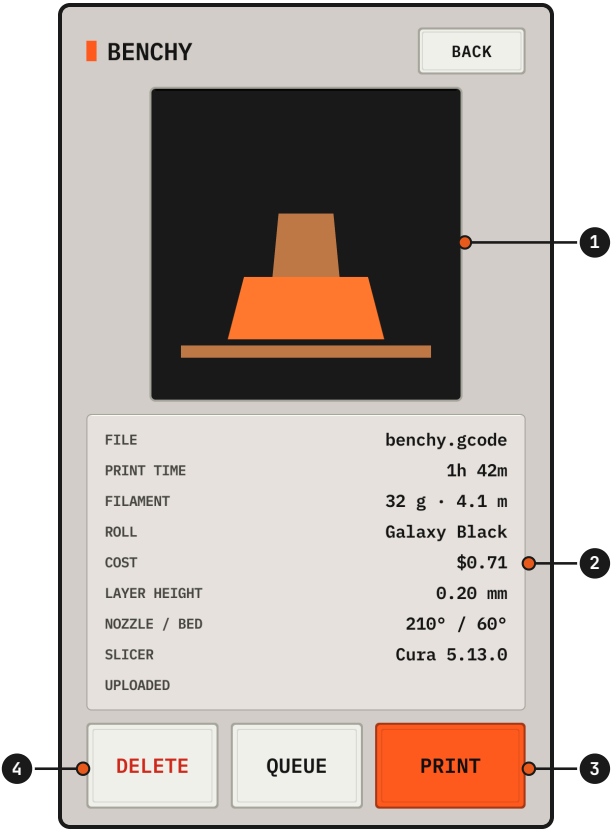
The file list



1. **Count.** The number of files.
2. **Picture.** The thumbnail.
3. **File.** The name of the print and the slicer data.
4. **Date.** When the file arrived.
5. **On the deck, SD card.** The files on the deck, or on the SD card of the printer display ([printdeck_sdcard]).

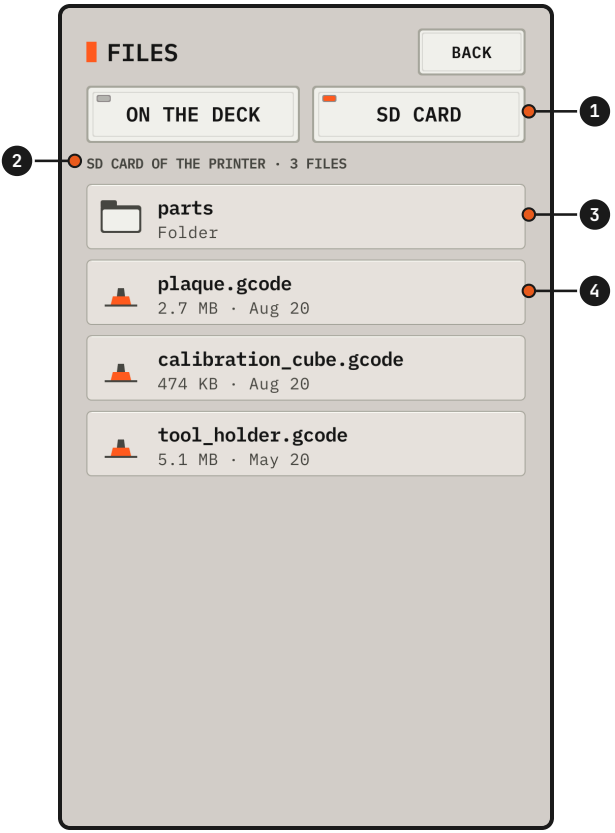
Tap a file to open it.

A file



1. **Picture.** The thumbnail.
2. **Slicer data.** The file name and the data from the slicer.
3. **Print.** Starts the print.
4. **Delete.** Removes the file.

The SD card of the printer



1. **On the deck, SD card.** The files on the card, or on the deck.
2. **Count.** The open folder.
3. **Folder.** Tap a folder to open it.
4. **File.** Tap a file to copy it to the deck.

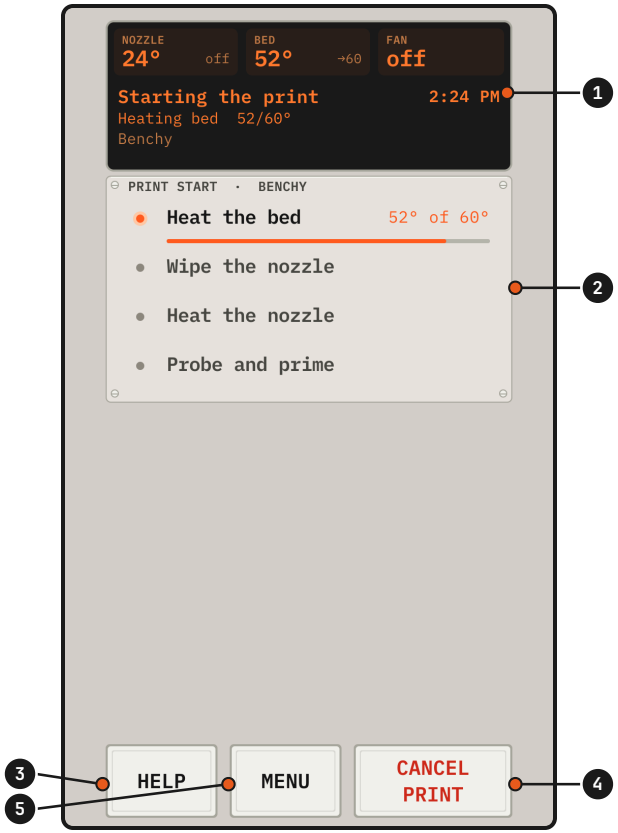
Stop ends the copy.

Watch the print

The deck shows a screen for each phase of the print.

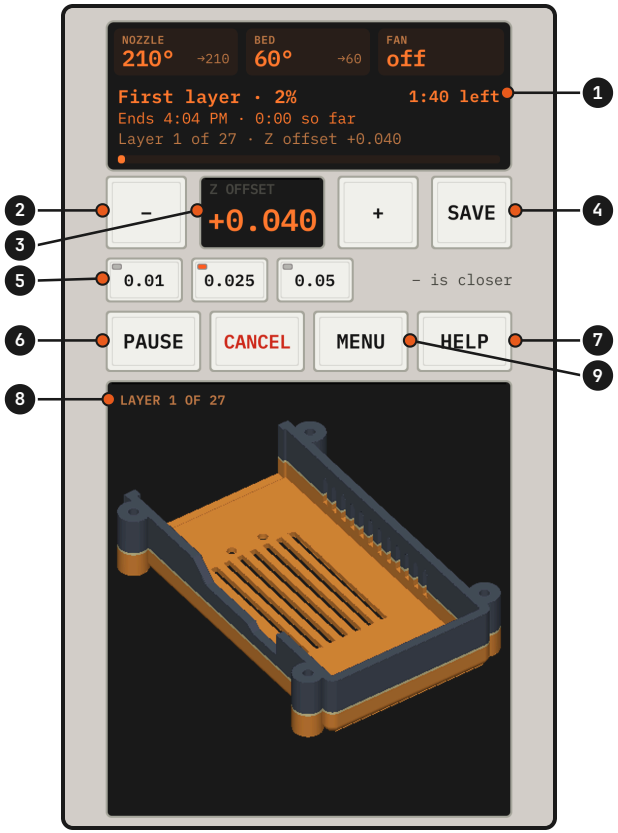
1. Watch the first layer. Use − and + to set the nozzle height.
2. Tap Save to keep the Z offset for the next prints.
3. Use Tune to change the speed, the flow or the fan.
4. When the print is done, wait for the bed to cool. Then remove the part.

Preparing



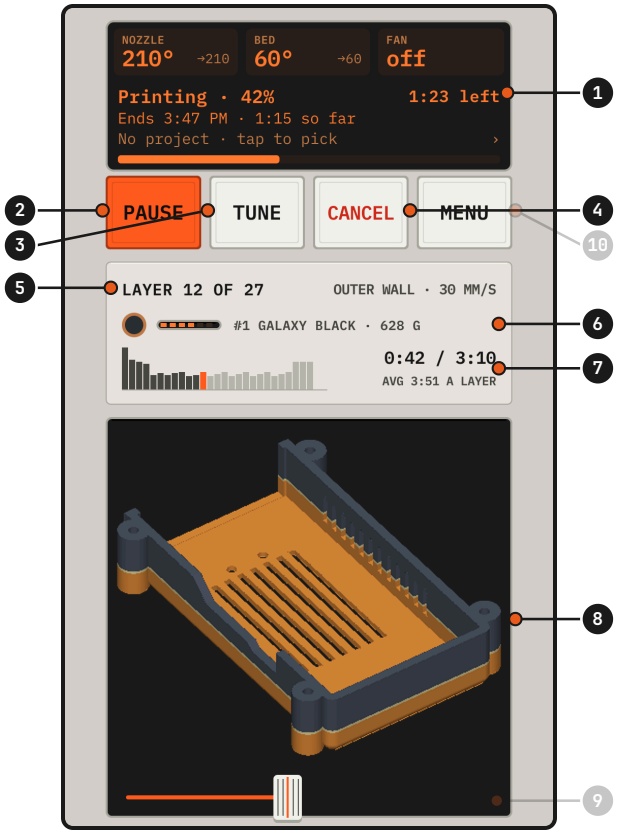
1. **Display.** The status panel: the nozzle, the bed, the fan, the state of the printer and the details of the print. Tap the nozzle or the bed to set its temperature.
2. **Steps.** The steps of the start macro. The step that runs has a lit LED.
3. **Help.** The network, the address and the password.
4. **Cancel print.** Stops the print.
5. **Menu.** Opens the other screens.

The first layer



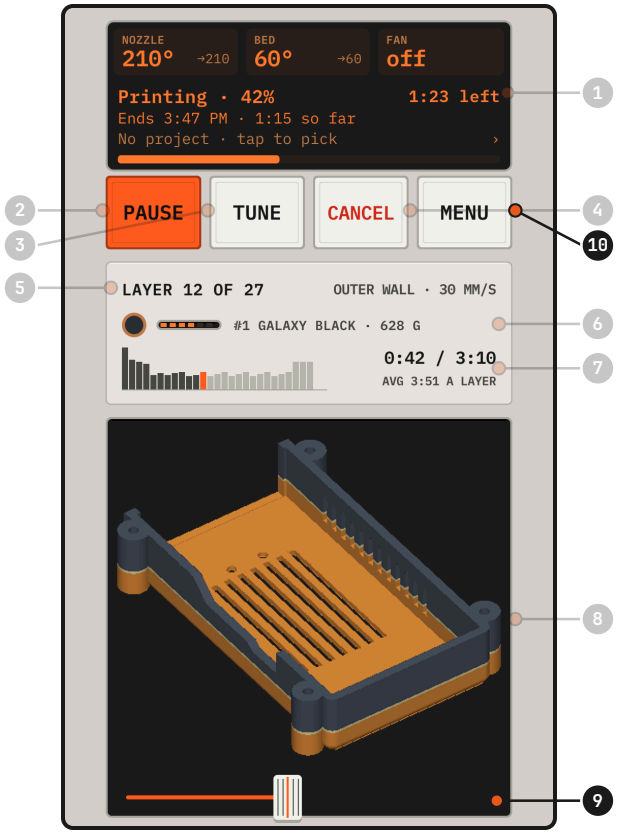
1. **Display.** The status panel: the nozzle, the bed, the fan, the state of the printer and the details of the print. Tap the nozzle or the bed to set its temperature.
2. **– and +.** A round, thin line needs – (closer). A flat, rough line needs + (farther).
3. **Z offset.** The nozzle height above its normal height.
4. **Save.** Keeps the Z offset for the next prints.
5. **Step.** How far one tap moves the nozzle, in mm.
6. **Pause, Cancel.** Pauses the print, or stops it after a question.
7. **Help.** The network, the address and the password.
8. **Layer.** The first layer of the model.
9. **Menu.** Opens the other screens.

Printing



1. **Display.** The status panel: the nozzle, the bed, the fan, the state of the printer and the details of the print. Tap the nozzle or the bed to set its temperature.
2. **Pause.** Pauses the print.
3. **Tune.** Changes the speed, the flow and the fan.
4. **Cancel.** Stops the print.
5. **Layer.** The layer now and the head speed.
6. **Roll.** The roll in the printer and its filament.
7. **Layer times.** A bar for each layer. Done layers are dark, the layer now is orange, and the next layers are light.
8. **Model.** The model up to the layer now.

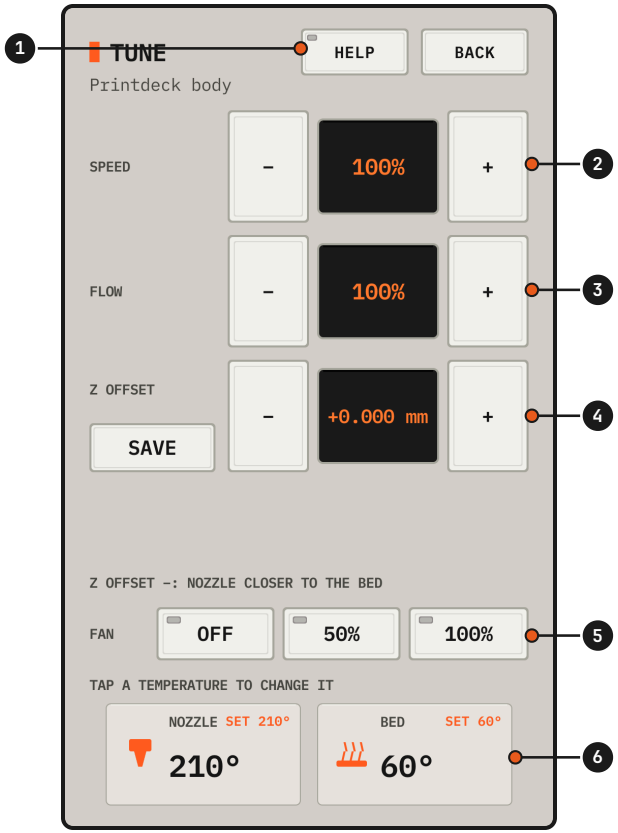
Printing (more)



9 **Layer slider.** Drag it to see another layer. Live goes back to the layer that prints.

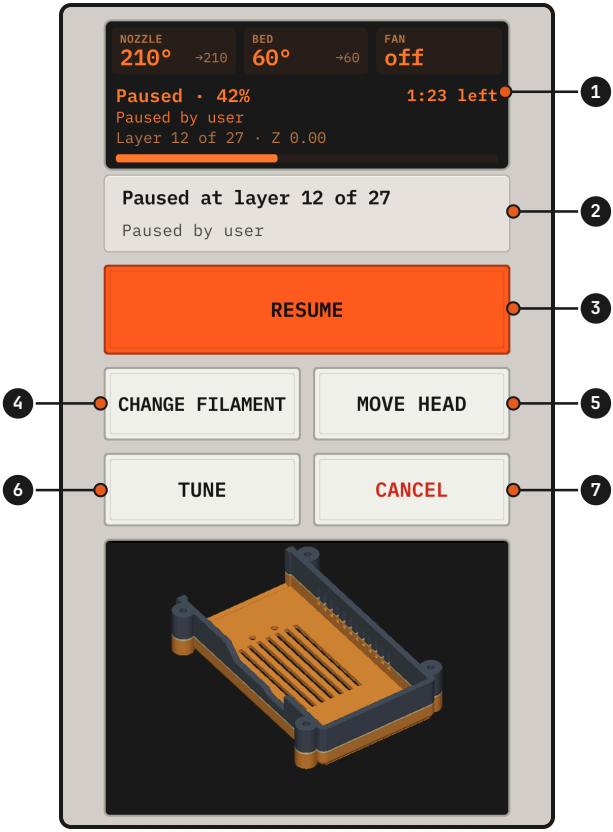
10 **Menu.** Opens the other screens.

Tune



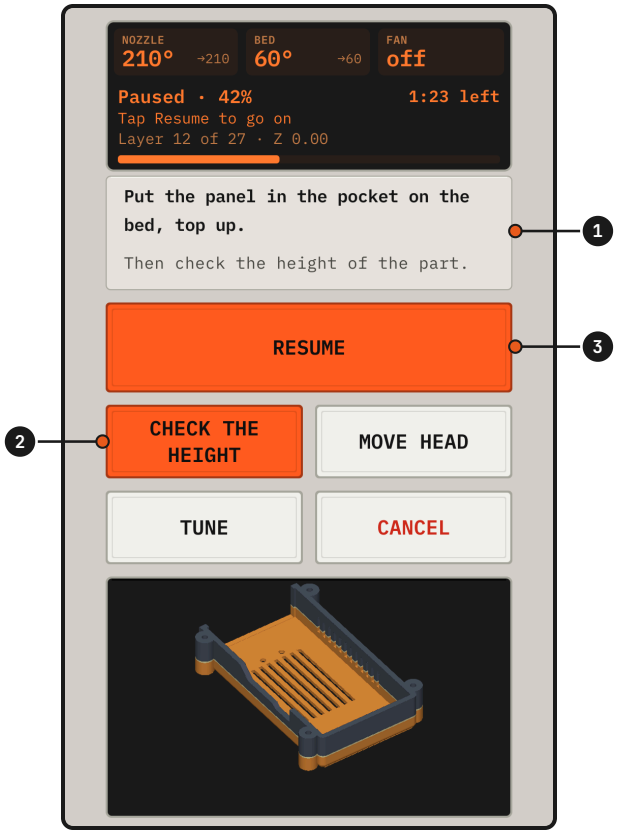
1. **Help.** The network, the address and the password.
2. **Speed.** The print speed, in percent of the slicer speed.
3. **Flow.** The amount of plastic, in percent.
4. **Z offset.** The nozzle height above its normal height. Save keeps it.
5. **Fan.** The part cooling fan.
6. **Temperatures.** Tap a card to change its temperature.

Paused



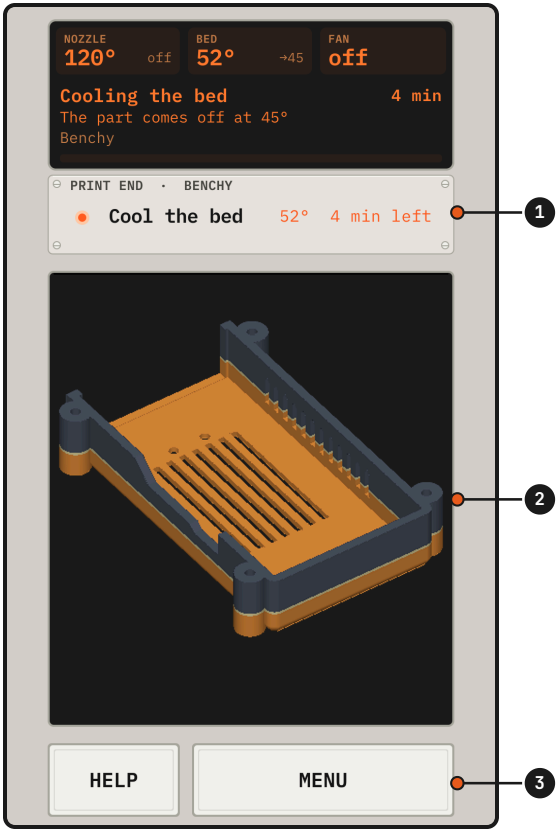
1. **Display.** The status panel: the nozzle, the bed, the fan, the state of the printer and the details of the print. Tap the nozzle or the bed to set its temperature.
2. **Where.** The layer and the message.
3. **Resume.** Continues the print.
4. **Change filament.** For a new color.
5. **Move head.** Opens Toolhead.
6. **Tune.** Changes the print.
7. **Cancel.** Stops the print.

A pause of the file



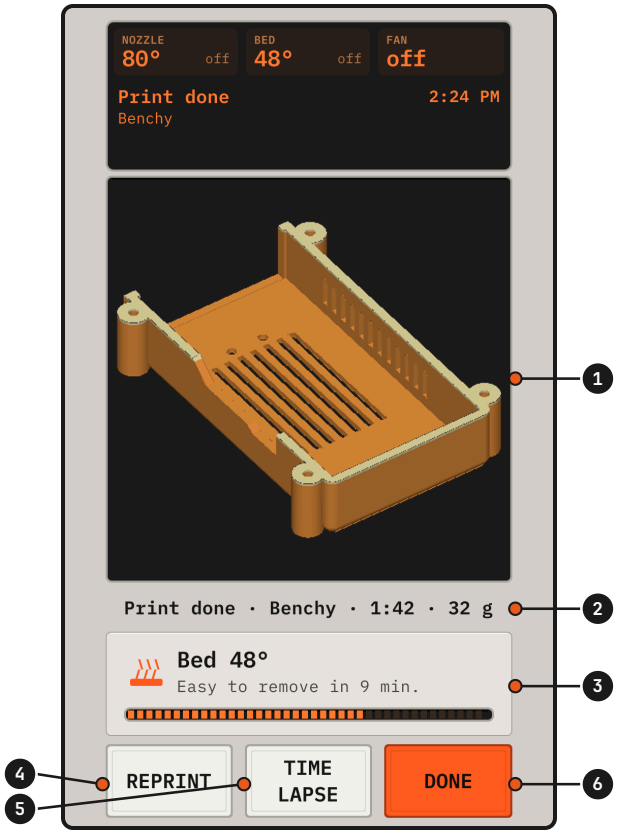
1. **Where.** The message of the file.
2. **Check the height.** A paper test on the part.
3. **Resume.** Primes the nozzle and continues.

The end of the print



1. **Steps.** The steps of the end macro.
2. **Model.** The finished model.
3. **Menu.** Opens the other screens while the end macro runs.

Done



1. **Model.** The model of the print.
2. **Result.** Done, Cancelled or Failed.
3. **Bed.** The time until the part comes off easily (35°).
4. **Reprint.** Prints the file again.
5. **Time lapse.** Plays the time lapse video of the print. It shows Saving... while the deck writes the video.
6. **Done.** Closes this screen.

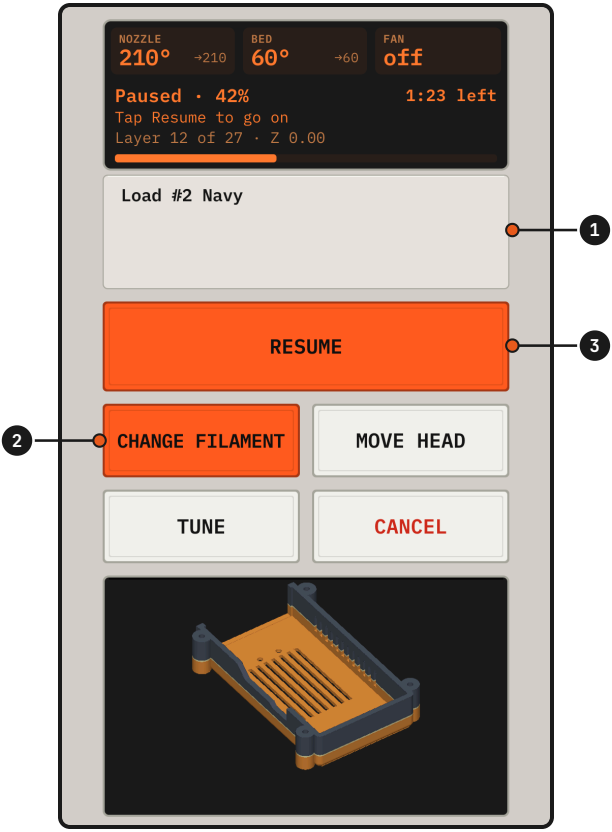
Time lapse shows only for a print with a time lapse.

Print in two colors

The Colors tool of the Cura plugin gives a model a roll of another color. The print pauses at the first layer of that model.

1. In Cura, put the letters on the part. Select the letters, open the Colors tool, and tap their roll.
2. Print. At the first layer of the letters, the printer parks and the deck shows Change filament in orange.
3. Tap Change filament. Unload, load the roll of the letters, and tap Done.
4. Pull the ooze off the nozzle with tweezers, then tap Resume.

A color change



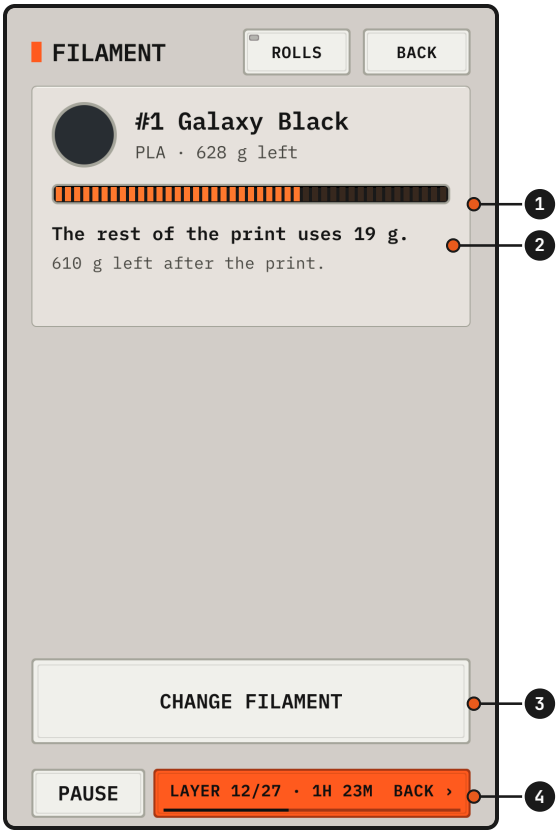
1. **Where.** The roll of the next color.
2. **Change filament.** Opens the filament change with that roll.
3. **Resume.** Primes the nozzle at the front of the bed, then continues.

Look around during a print

During a print, the other screens are read only. The deck goes back to the print after 2 minutes with no touch.

Tap Menu to open the other screens. Tap the print bar at the bottom to go back to the print.

Filament during a print



1. **Roll.** The roll in the printer and its filament.
2. **Lasts.** The filament left after the print. Red text shows a roll that runs out.
3. **Change filament.** Pauses the print and opens the filament change. Then tap Resume.
4. **Print bar.** Tap the bar to go back to the print.

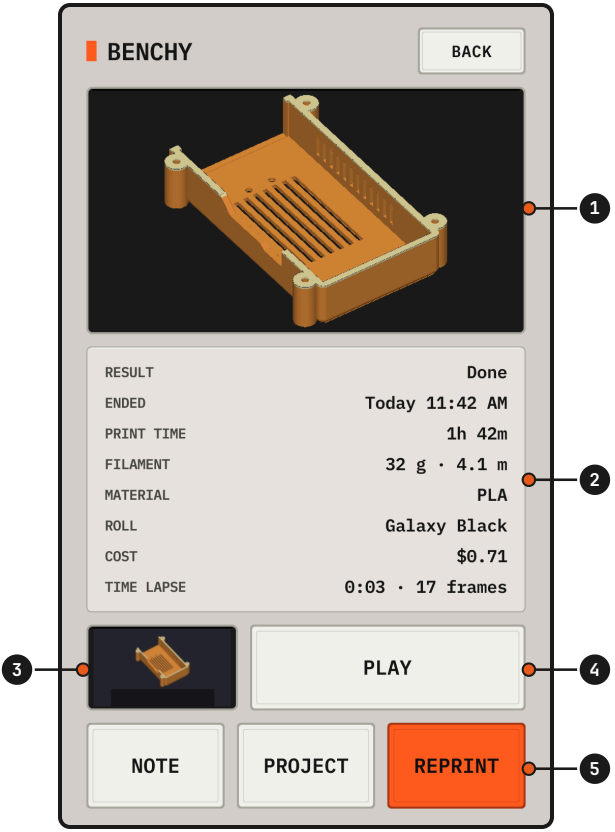
Make a time lapse

The deck camera captures a picture at each layer change. At the end of the print, the deck makes a video.

For each picture, the printer retracts, lifts the nozzle and moves the head to the left side. A bed that moves in Y goes to the middle of the part, so the bed is at the same place in each frame. On the TAZ Workhorse the nozzle goes to Z 10 mm or more, over the bed washers. Each picture adds a few seconds.

1. Aim the camera: Settings, then Camera.
2. Open Settings, then Time lapse.
3. Check Time lapse at the top of the page to turn it on.
4. With two cameras, open Settings, then Cameras. Tap a camera, and check Time lapse or Pictures.
5. Tap First layer, and choose a picture of the first layer, or a picture and a pause. At a pause, check the layer, then tap Resume.
6. Print. After the first layer, the deck shows its picture.
7. At the end of the print, tap Time lapse on the done screen. The video plays.
8. To see it later, open Machine, then Statistics, then History. Tap the print, then Play.
9. To download the video, open http://printdeck.local/system in a browser. The Time lapse part has the video. Click its name.

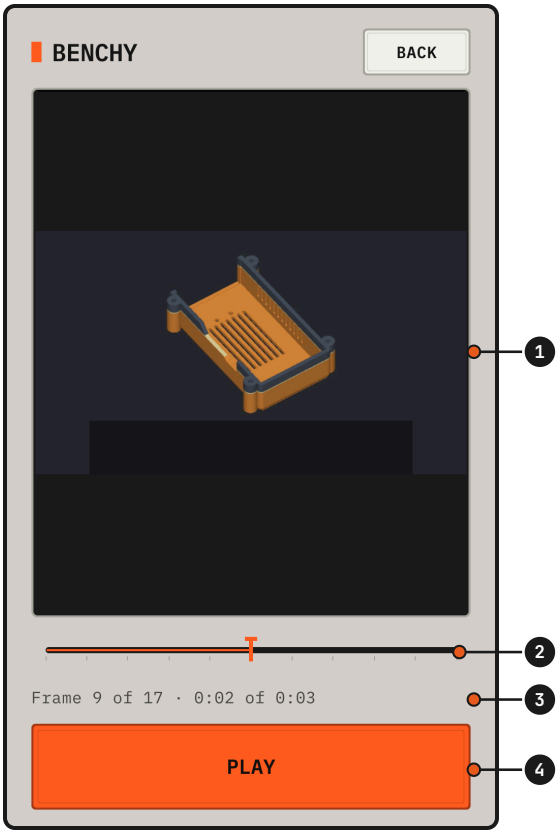
A print of the history



1. **Model.** The model of the print.
2. **Details.** The result, the time, the filament and the time lapse video.
3. **Still.** The last frame of the time lapse video.
4. **Play.** Opens the player.
5. **Reprint.** Prints the file again.

The deck keeps the last 3 videos. The record of an older print shows Removed.

The time lapse player



1. **Video.** The video, as large as it fits.
2. **Position.** Tap or drag to go to a frame.
3. **Frames.** The frame, the count of frames, the time and the length.
4. **Play.** Plays the video, or pauses it.

The video plays only while this page shows. Back returns to the page that opened it.

The iPhone and Apple Watch apps

The iPhone app shows the deck and controls the print. The watch app shows the print.

The apps use the local network. The watch connects on Wi-Fi, or through the iPhone.

1. Open Printdeck on the iPhone. It finds the deck on the network. Tap Connect.
2. Tap Allow on the deck.
3. For push messages, open Menu, then Notifications, and tap Pair for notifications. Allow the notifications.
4. To add the complication, edit the watch face and choose Printdeck.
5. To add a widget, touch and hold the Home Screen or the Lock Screen, tap Edit, and choose Printdeck.

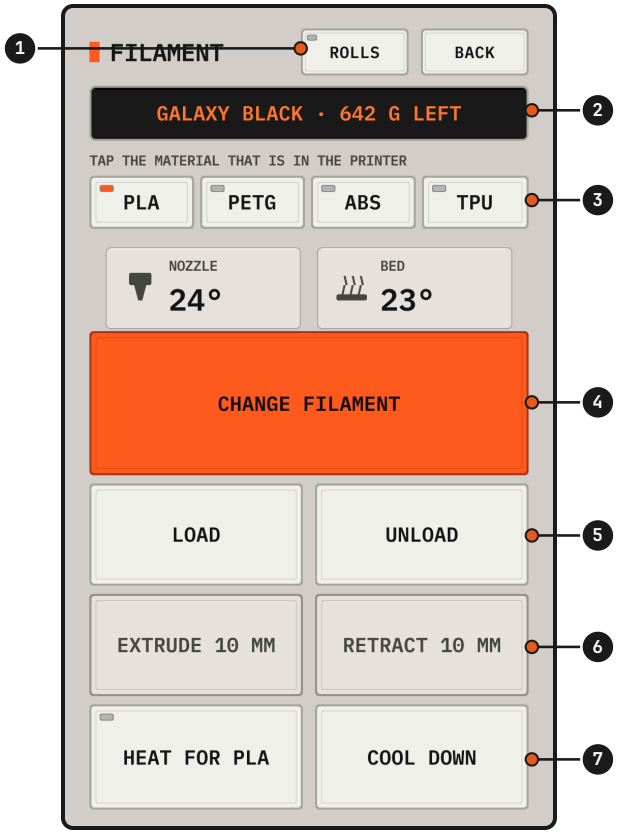
iPhone app	The deck screen and its keys. With two cameras, tap a camera name on the camera page, or swipe, to switch. The watch shows the same camera. Time lapse lists the videos of the deck: tap a video to play it, share it, or save it to Photos.
Watch app	The progress and the time left. Tap for Pause, Resume or Cancel.
Complications	The progress on the watch face.
Home Screen widgets	The status of the print.
Lock Screen widgets	The same as the complications.
Live Activity	The print on the Lock Screen and in the Dynamic Island.
Notifications	Print done, print failed, paused, first layer done, and a roll that runs short.

Change the filament

Set the loaded filament here, so Preheat uses its temperatures. The deck keeps a list of your rolls. Each print subtracts its filament from the roll in the printer.

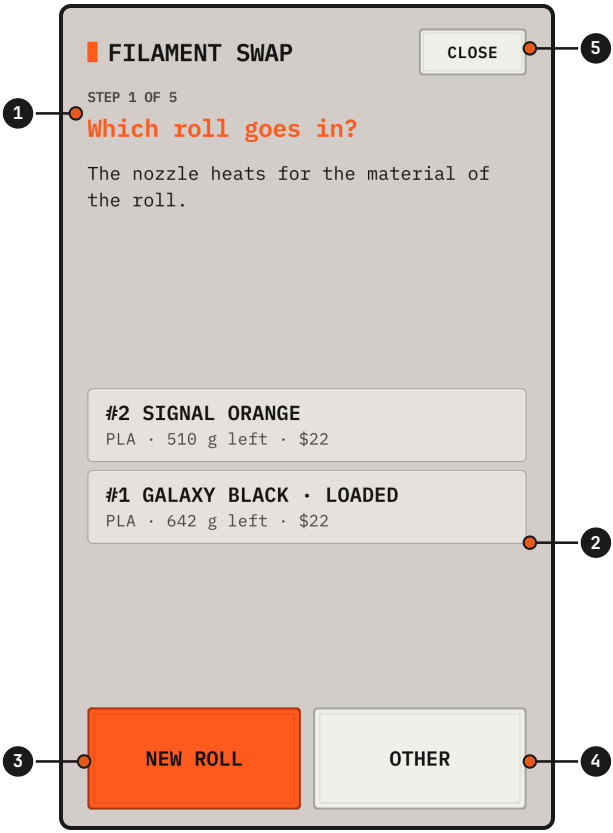
1. Open Filament, then tap Change filament.
2. Tap the roll that goes in, or tap New roll and weigh it. The nozzle heats for its material.
3. Tap Unload, and hold the filament lightly while it comes out.
4. Push the new filament into the extruder until it stops, then tap Load.
5. Check that clean plastic of the new color comes out, then tap Done.

The Filament page



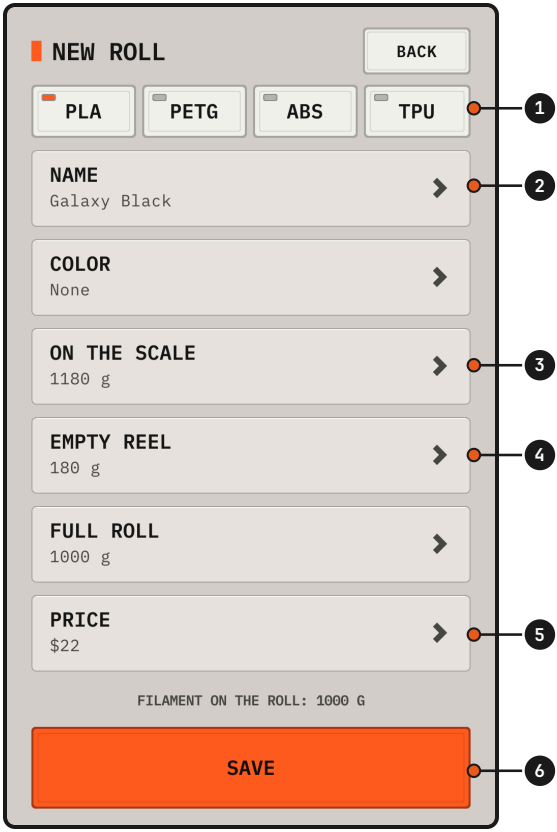
1. **Rolls.** Opens the list of your rolls.
2. **Loaded.** The roll or the material in the printer.
3. **Material.** Tap the material in the printer.
4. **Change filament.** The guided change: choose, heat, unload, insert, load, check.
5. **Load, Unload.** Only the load, or only the unload.
6. **Extrude, Retract.** Pushes or pulls 10 mm. The nozzle must be at 170° or more.
7. **Heat, Cool down.** Heats the nozzle, or turns the heaters off.

The guided change, step 1



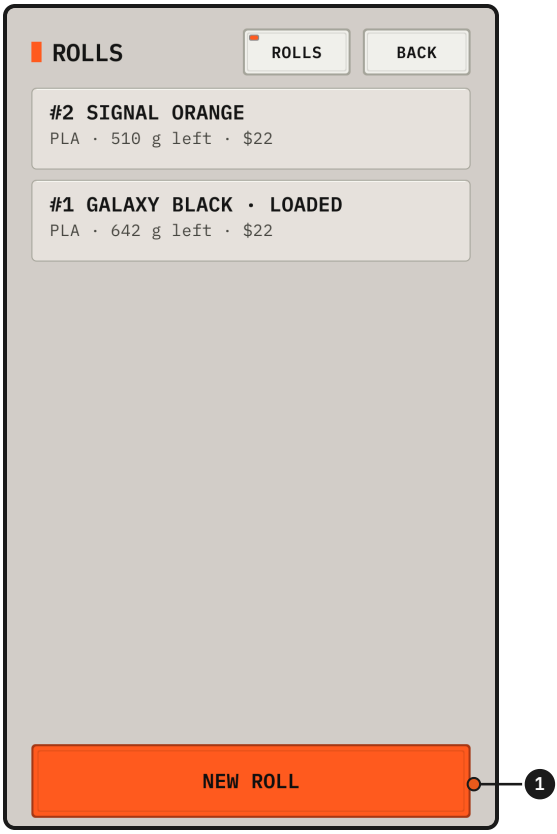
1. **Step.** The step now.
2. **Rolls.** Tap the roll that goes in.
3. **New roll.** Adds a roll and weighs it.
4. **Other.** A filament with no roll.
5. **Close.** Stops the change and turns off the nozzle.

A new roll



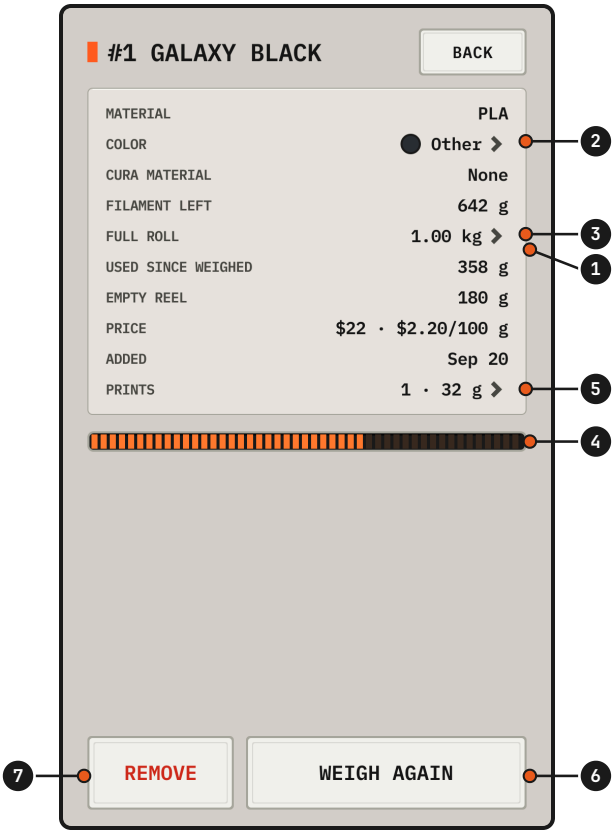
1. **Material.** The material of the roll.
2. **Name.** For example the color and the brand.
3. **On the scale.** The weight of the roll with its reel.
4. **Empty reel.** The weight of an empty reel of the same brand.
5. **Price.** The roll price, for the cost of each print.
6. **Save.** Adds the roll as the loaded roll.

The rolls



1 **New roll.** Adds a roll with no filament change.

One roll



1. **Details.** The filament left, the filament used, and the price.
2. **Color.** Tap it to choose a color. The print screen and Cura show it.
3. **Full roll.** The filament of a full roll: 1 kg by default. Tap it to change it.
4. **Left.** The part of a full roll that is left.
5. **Prints.** Tap it for the prints that used the roll.
6. **Weigh again.** Sets the filament from a new weight.
7. **Remove.** Removes an empty roll from the list.

> Each roll has a number, for example #3. For QR code labels, open printdeck.local/rolls/labels and print the sheet on 2 inch round labels (Avery 22807). A phone camera on a label opens the page of the roll. Load there opens the filament change on the deck.

The color of a roll



1 **Colors.** Tap a color.

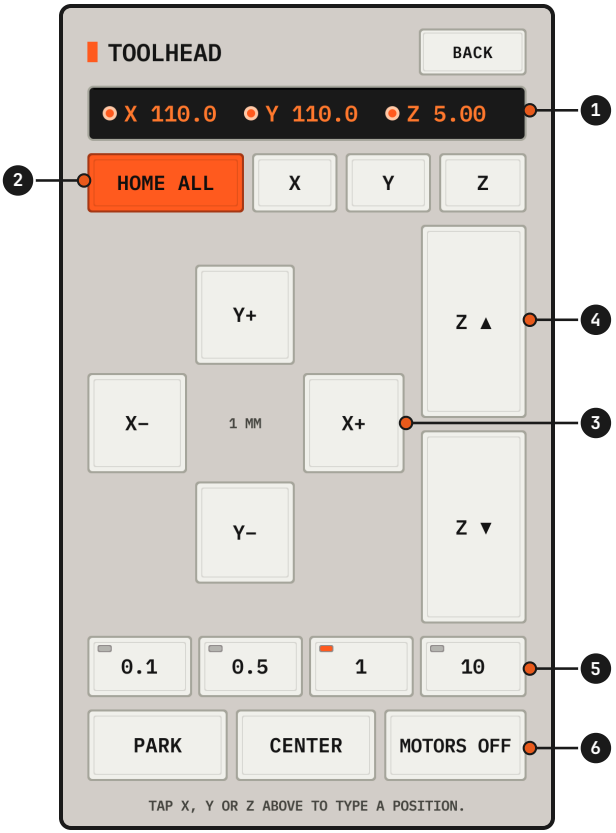
2 **No color.** Removes the color.

Tap a color to set it. The Cura plugin gives the roll material in Cura the same color.

Move the head and heat

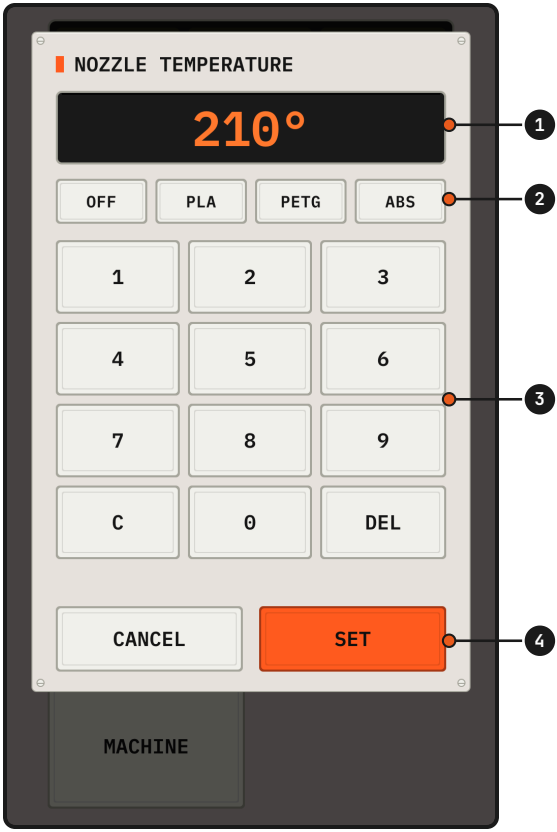
1. Open Toolhead, and tap Home all after each start of the printer.
2. Hold the joystick to move the head. Use Z for the height.
3. Tap a temperature on the idle screen to set it with the keypad.

The Toolhead page



1. **Position.** A lit LED shows a homed axis.
2. **Home.** Home after each start of the printer.
3. **X+.** The arrow keys move the head in X and Y by the step. Hold a key to keep moving: the head stops when you lift your finger. A small step gives a slow move.
4. **Z up.** Z ▲ and Z ▼ move Z by the step.
5. **Steps.** The step of the arrow keys: 0.1, 0.5, 1 or 10 mm.
6. **Park, Center, Motors off.** Park lifts the nozzle 10 mm and moves the head to the back left. Center moves it to the bed center. Motors off frees the head.

The keypad of a temperature



1. **Value.** The value.
2. **Presets.** Off, and the material temperatures.
3. **Keys.** C clears, DEL removes a digit.
4. **Set.** Sets the heater.

Level and calibrate

Maintenance lists the calibrations of your printer. Open it from Machine.

1. Open Machine, then Maintenance.
2. Tap Bed tilt or Bed mesh to probe the bed. The deck shows the action until it ends.
3. Tap Probe Z offset for the paper test. Move the nozzle down until a sheet of paper drags a little, then tap Accept.
4. Tap PID tune after you change a heater or a fan. A PID tune runs for about 10 minutes.
5. Tap Save config to write the results. Klipper restarts.
6. Open Machine, then Calibration. Tap Pressure advance, then Print the tower. After the print, tap Pressure advance, then From the tower, and type the height of the sharpest corners.
7. Tap Retraction, then Print the tower. After the print, tap Retraction, then From the tower, and type the height of the lowest band with no strings.
8. After a change to the probe mount, tap Probe offset, then Print the pad and find it. After the print, tap Probe offset, then Set from the last pad. Then do the twist and the bed map again.
9. To see how the bed changes when it heats, open Maintenance, then Heat change, tap Test, and then Heat sweep. The deck prints a G-code file that maps the bed at room temperature, then each 5 °C from 35 to 60 °C, and shows each map less the cold map. The sweep runs for about 75 minutes, after the bed cools.

10 The bed changes its shape for many minutes after it gets hot. To measure this, tap Test, and then Drift test. The bed cools to 30 °C, heats to 60 °C, and the probe measures the middle of the bed each minute for 20 minutes. Drift test, boost does the same test, but the bed first heats to 65 °C for 3 or 6 minutes, then goes back to 60 °C. Compare it with the drift test: a boost can make the bed settle sooner. Last drift results shows how far the bed moved, the time to 90 % of the movement, and the time after which the bed stays within 0.03 mm. BED_SETTLE in PRINT_START uses this: it probes the middle of the bed every 30 s, and the print starts when the bed stops moving.

11 Tap Height check, then Print, measure only. After the print, tap Height check, then Last results. Then print it again with Print, measure and correct, and compare the results and the heights of the two towers.

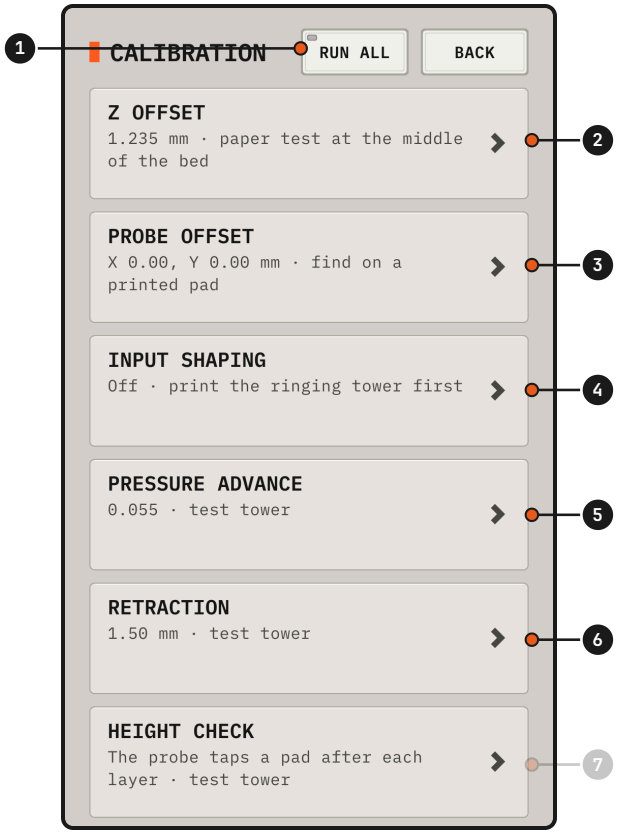
12 To cool the bed before the end of a print, open Maintenance, then Bed cool. Set a hold temperature for each material. The deck sets the bed to the hold when the time left is the time that the bed needs to cool. It learns that time from each cool of the bed. It does not cool the bed before half of the print, or for a part that is tall on a small base.

The Maintenance page



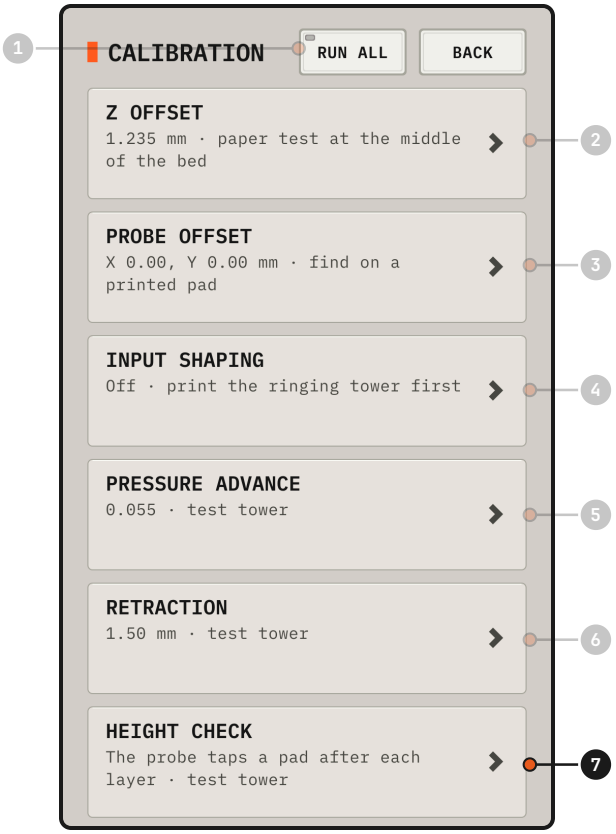
1. **Bed tilt.** Probes the bed and corrects its tilt. A printer with a bed mesh shows Bed mesh.
2. **Bed cool.** Sets the bed to a hold temperature a little before the end of a print, so the part can come off sooner.
3. **Probe Z offset.** The paper test for the nozzle height.
4. **PID tune.** Heats the nozzle to 210° and the bed to 60°, and tunes each heater.
5. **Nozzle change.** Heats the nozzle to 250° and raises the head.
6. **Firmware.** Writes the Klipper firmware. Orange text shows old firmware.
7. **Simulated printer.** Runs a simulated printer. Orange text shows a simulated printer in use.

The Calibration page



1. **Run all.** Heats, then runs the Z offset, the twist and the bed map, one after the other.
2. **Z offset.** The paper test for the nozzle height, hot.
3. **Probe offset.** Prints a 20 mm pad. The pin then finds the edges of the pad, and the deck finds x_offset and y_offset of the probe.
4. **Input shaping.** Opens the tests of the input shaper: the ringing tower and the check tower.
5. **Pressure advance.** Prints the test tower, or sets the value from it. The pressure advance goes up 0.005 for each mm of the tower. Type the height of the sharpest corners.
6. **Retraction.** Prints the test tower, or sets the length from it or by hand. The length goes up 0.25 mm each 3 mm band. Type the height of the lowest band with no strings.

The Calibration page (more)



7 **Height check.** Prints a 20 mm tower with a small pad. After each layer the probe taps the pad. Print it once to measure only, and once with the correction of the Z offset. Last results shows the errors.

Each row opens its choices. A printer with no probe shows only Pressure advance and Retraction.

The retraction is the length of [firmware_retraction]. Turn on Firmware Retraction in the printer settings of the slicer, so the G-code has G10 and G11.

An action runs

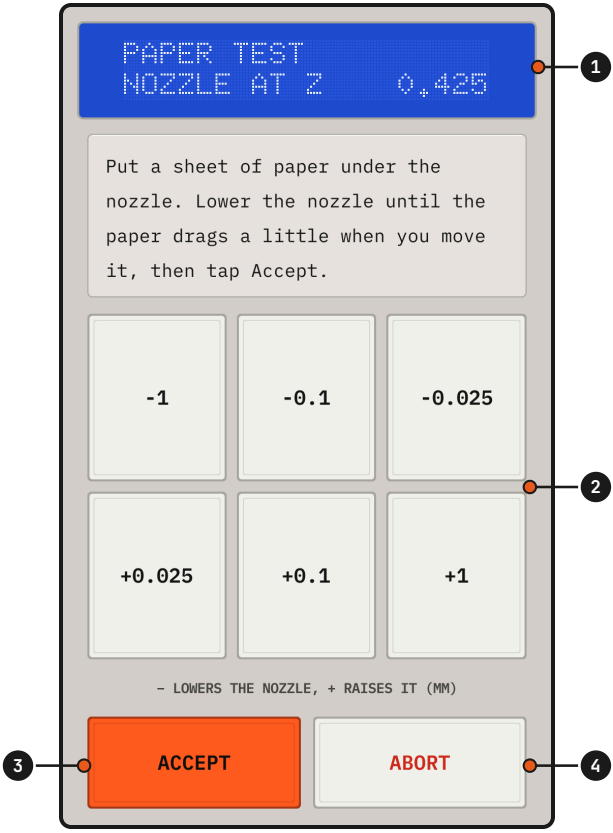


1 **Action.** The time since the start.

2 **Stop the printer.** Stops the printer at once. Then tap Firmware restart.

> The other keys are locked while an action runs. If the action fails, the deck shows the Klipper error until you tap OK.

The paper test



1. **Height.** The height of the nozzle now.
2. **Steps.** Moves the nozzle down (–) or up (+).
3. **Accept.** Keeps the height. Then tap Save config.
4. **Abort.** Stops the test with no change.

This screen opens by itself for each paper test, also from a macro.

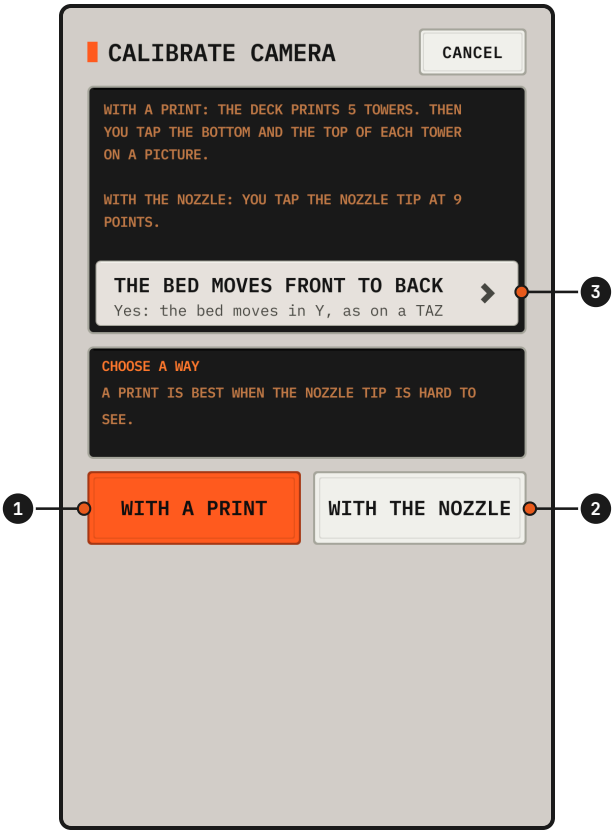
Calibrate the camera

A calibration lets the camera views and the time lapse crop follow the part.

The deck prints 5 towers and you tap them on a picture. A bed that moves front to back goes to two places, so the deck also gets the depth.

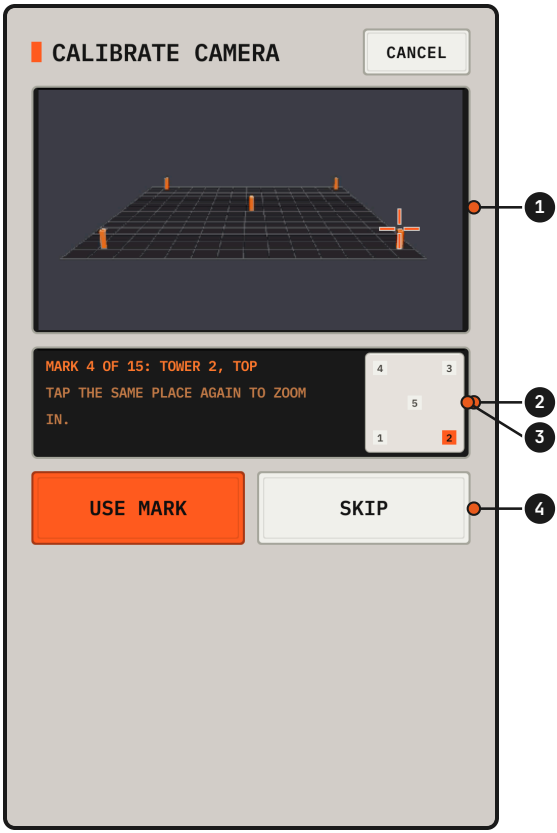
1. Open Settings, then Camera, then Calibrate.
2. Tap With a print. Clear the bed, then tap Print. The towers print in the loaded material.
3. After the print, leave the towers on the bed and tap Go on. The toolhead moves to the left side, and the bed moves.
4. For each mark, tap the bottom or the top of the tower, then tap Use mark. Tap Skip for a mark that you cannot see.
5. The bed moves to the front. Tap the top of each tower again.
6. Check that the green lines are on the towers, then tap Save. Remove the towers.

Calibrate the camera: the two ways



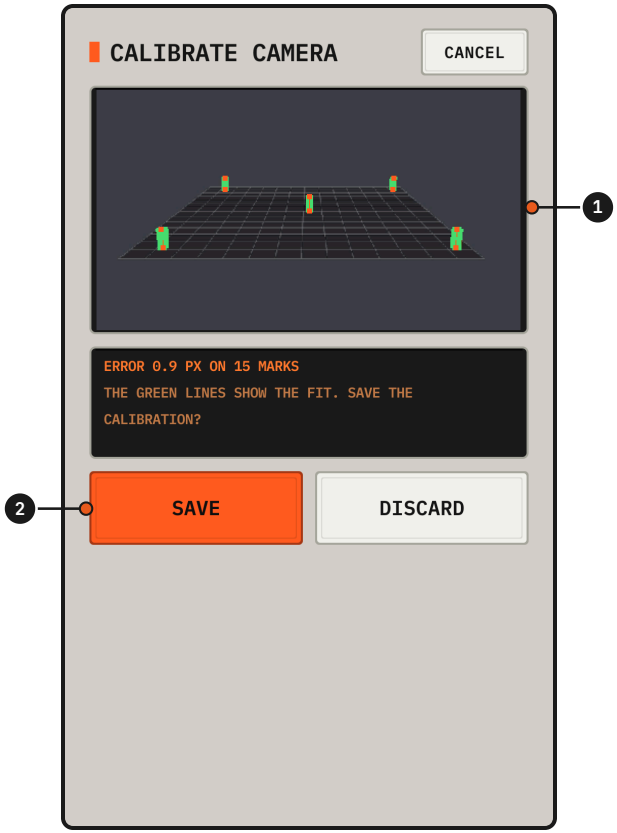
1. **With a print.** Prints 5 towers. Use it when the nozzle tip is hard to see.
2. **With the nozzle.** The nozzle goes to 9 points. Tap the tip at each point.
3. **The bed moves front to back.** Yes for a printer with the bed on Y, such as a TAZ. The default comes from printer.cfg.

Tap a tower



1. **Picture.** Tap the mark. The first tap zooms in. Tap or drag again to put the mark exactly.
2. **Step.** The tower and the end to tap: the bottom or the top.
3. **Plan.** The towers from the top. The tower now is orange.
4. **Skip.** Goes to the next mark, when the picture does not show this one.

The result of the calibration



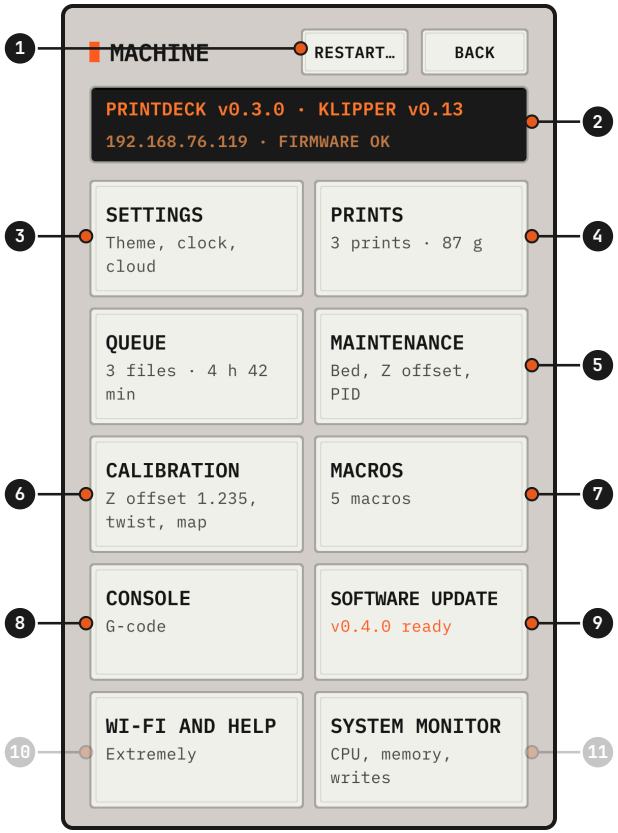
1 **Picture.** The green lines are the towers of the calibration. They must be on the towers.

2 **Save.** Keeps the calibration. Then remove the towers from the bed.

Look after the printer

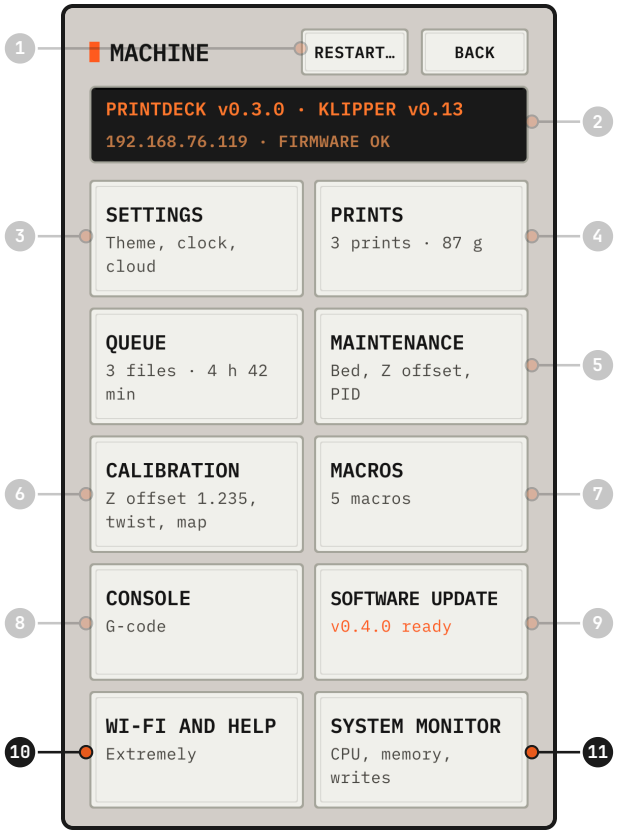
Machine has the information of the printer, the history of the prints, the macros, the console and the settings.

The Machine page



1. **Restart….** Restarts Klipper or the board firmware, after a choice.
2. **Information.** The versions, the address and the state of the firmware.
3. **Settings.** The theme, the clock, the screen, the cameras and the messages.
4. **Prints.** The totals and the history of all prints.
5. **Maintenance.** The bed, the heaters, the firmware and the simulated printer. Orange text shows old firmware or results to save.
6. **Calibration.** The nozzle height, the pressure advance and the retraction.
7. **Macros.** Tap a macro to run it.
8. **Console.** The G-code console.
9. **Software update.** Shows and installs a new version. Orange text shows a new version.

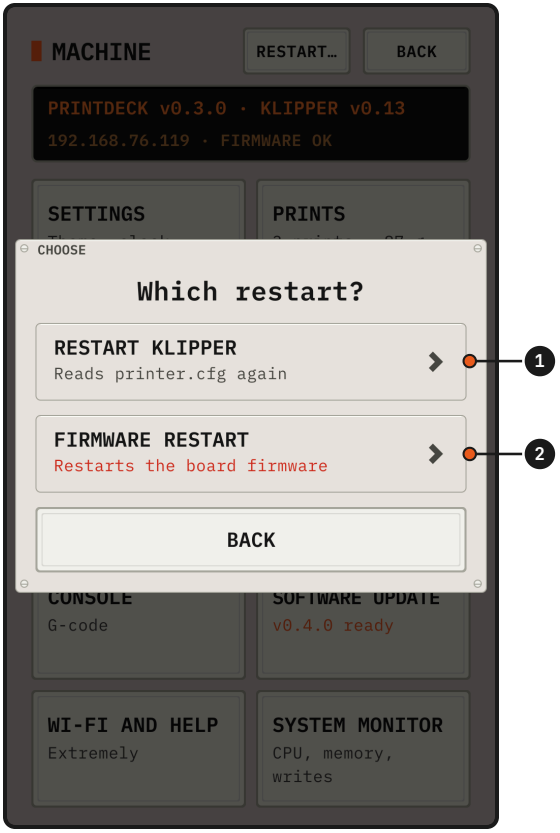
The Machine page (more)



10 **Wi-Fi and help.** The network, the password and the addresses.

11 **System monitor.** Graphs of the CPU, the memory and the SD card.

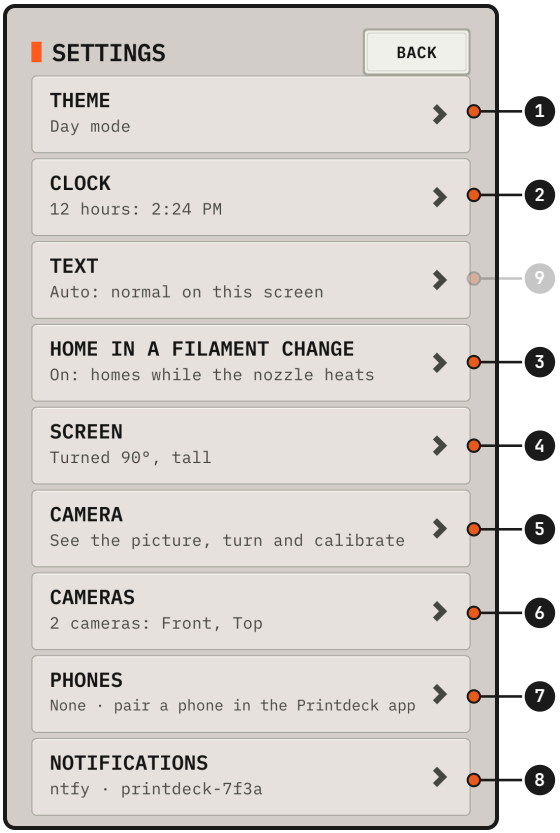
Restart…



1. **Restart Klipper.** Reads printer.cfg again. The firmware keeps running.
2. **Firmware restart.** Restarts the firmware of the board, for example after a stop.

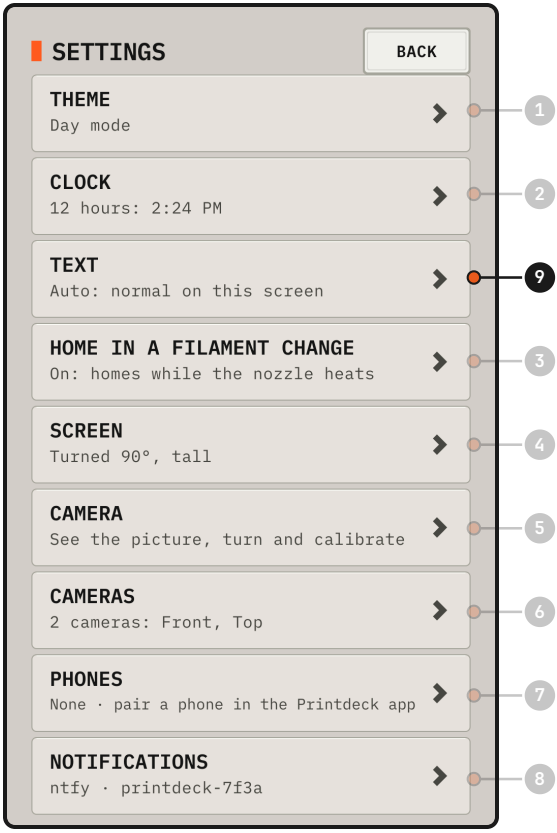
Each restart asks again before it starts. During a print, Restart… is locked.

The Settings page



1. **Theme.** Day, night, or auto.
2. **Clock.** 12 or 24 hours.
3. **Home in a filament change.** On: the printer homes while the nozzle heats for a filament change.
4. **Screen.** Tap it to turn the screen a quarter turn. The deck restarts, and a print continues. This setting overrides display_rotate.
5. **Camera.** Opens the live picture, as the Camera key does.
6. **Cameras.** Names the cameras and sets their uses.
7. **Phones.** The phones that get push messages. Tap a phone in the list to remove it.
8. **Notifications.** Push messages through ntfy. In the ntfy app, subscribe to a topic with a name that is hard to guess. Type the same topic here. An empty topic turns the messages off.

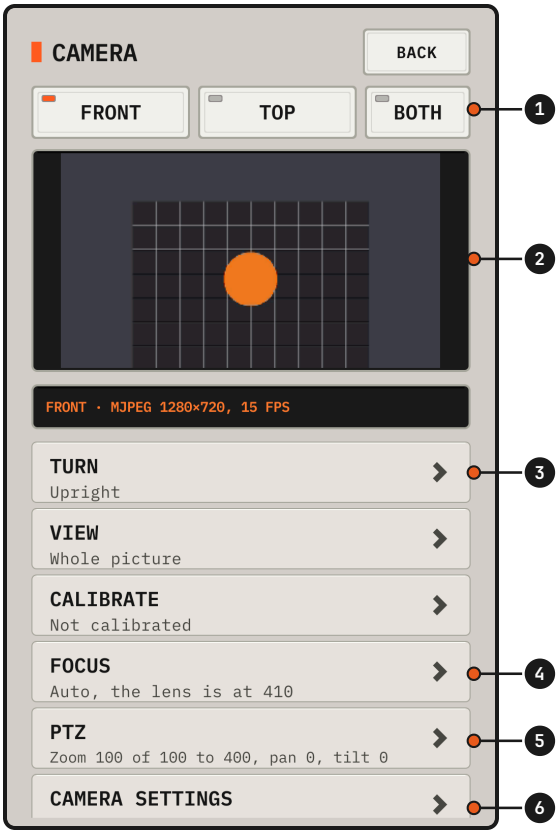
The Settings page (more)



9 **Text.** The size of the small text: auto, large, or normal.

Each row opens its setting. A setting that is on or off has a check box. A setting with choices has a check at the choice now.

The Camera page

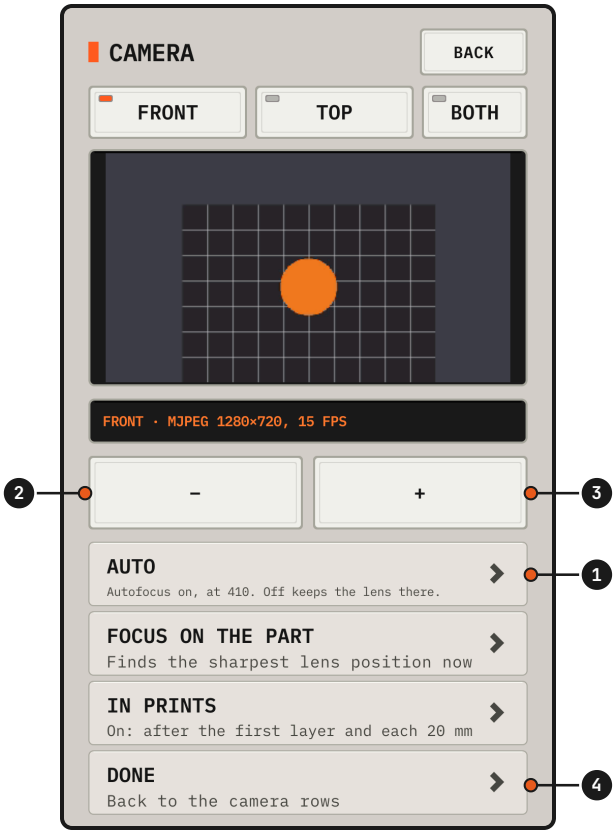


1. **Tabs.** A tab for each camera that is on. Both shows all the cameras.
2. **Picture.** Use it to aim the camera at the bed.
3. **Turn.** Opens the turn of the picture: upright, 90° right, 180° or 90° left. Use it for a camera on its side or upside down.
4. **Focus.** Shows the focus keys. Only a camera with a focus control has this key.
5. **PTZ.** Shows the zoom keys. Only a camera with a zoom control has this key.
6. **Camera settings.** The name, on or off, and the uses of this camera.

A camera runs only while somebody looks at it. With no camera, the apps show the deck screen.

If a camera shows too little USB bandwidth, move it to another USB port.

The focus of the camera

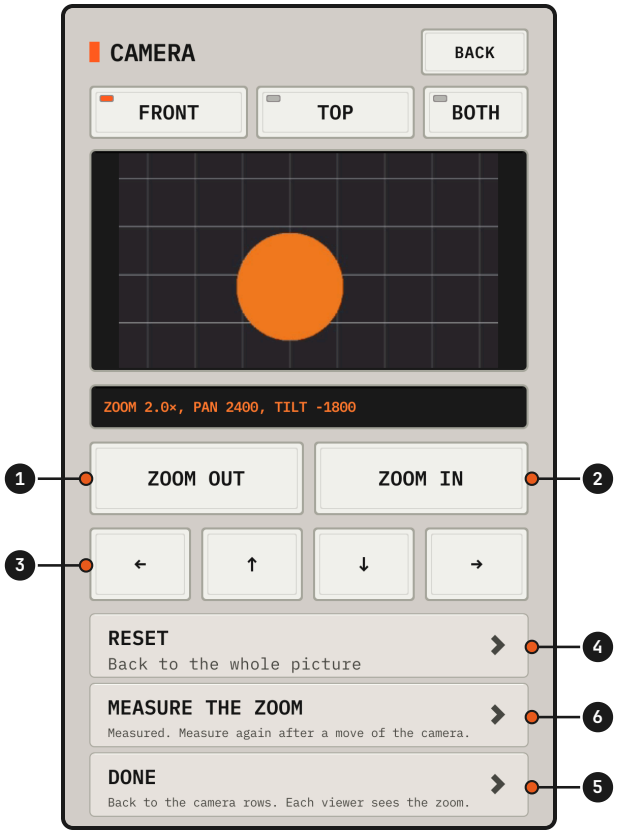


1. **Auto.** Lit when the camera focuses itself. Turn the autofocus off to keep the lens where the autofocus put it.
2. **–.** Moves the lens one step. The autofocus goes off.
3. **+.** Moves the lens one step to the other side.
4. **Done.** Shows the other camera keys again.

A fixed focus keeps the picture sharp when the toolhead and the bed move. Set it while the picture shows the nozzle.

The deck keeps the focus of each camera, and sets it each time the camera starts.

The zoom of the camera



1. **Zoom out.** Shows more of the printer.
2. **Zoom in.** Shows a smaller part of the picture, larger.
3. **Left.** The arrows move the picture left, up, down and right.
4. **Reset.** Back to the whole picture.
5. **Done.** Shows the other camera keys again.
6. **Measure the zoom.** Measures the zoom of the camera, once. The camera zooms and moves for a few seconds.

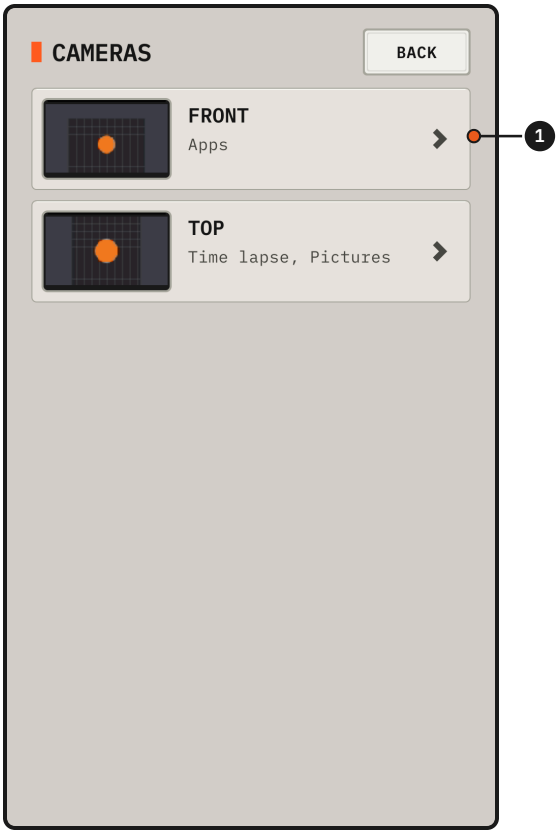
A camera with a digital zoom crops its picture itself. The deck gets the picture with no extra work.

The camera sends one picture, so each viewer sees the zoom: the apps, the time lapse and the phone pictures.

Measure the zoom with the camera aimed at the bed and the printer still. The views and Zoom to the part then follow the zoom. Measure again after you move or turn the camera.

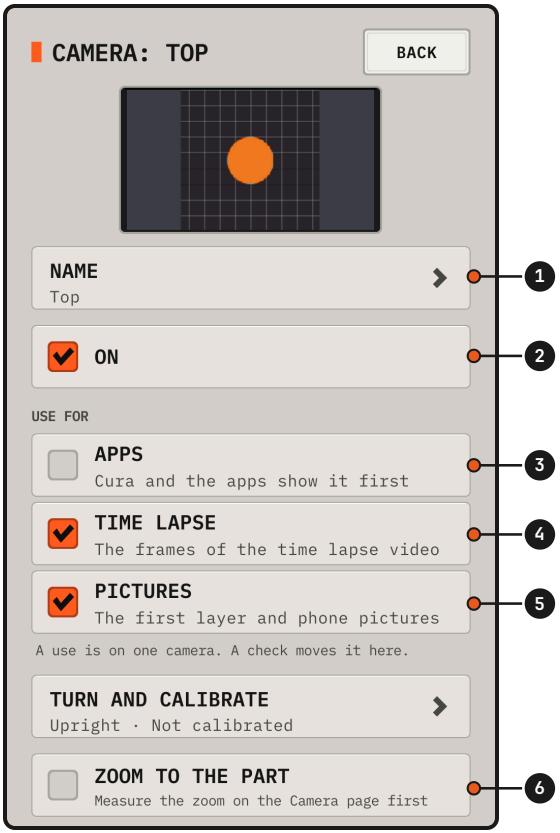
The deck keeps the zoom of each camera, and sets it each time the camera

The Cameras page



1 **Front.** Each camera, with its uses.
Tap a camera to change it.

The settings of one camera

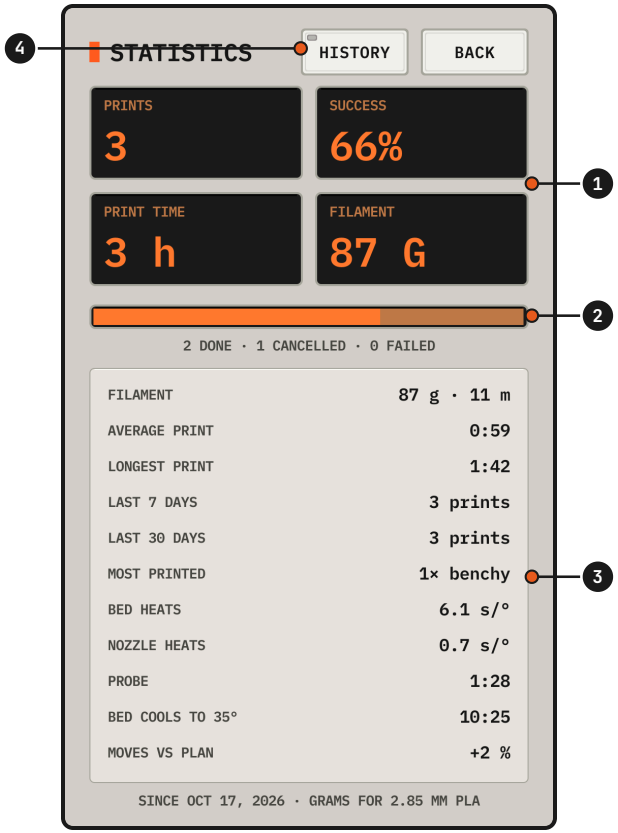


1. **Name.** Type a name, such as Top.
2. **On.** Turns the camera on or off. Its uses move to another camera.
3. **Apps.** Cura and the apps show this camera first.
4. **Time lapse.** The camera of the time lapse.
5. **Pictures.** The first layer picture, and the pictures on the phone.
6. **Zoom to the part.** During a print, the camera zooms to the plate, and at the end it goes back. It needs Measure the zoom and a calibration. Only a camera with a zoom control has this row.

> Each use is on one camera. To move a use, check it on the other camera.

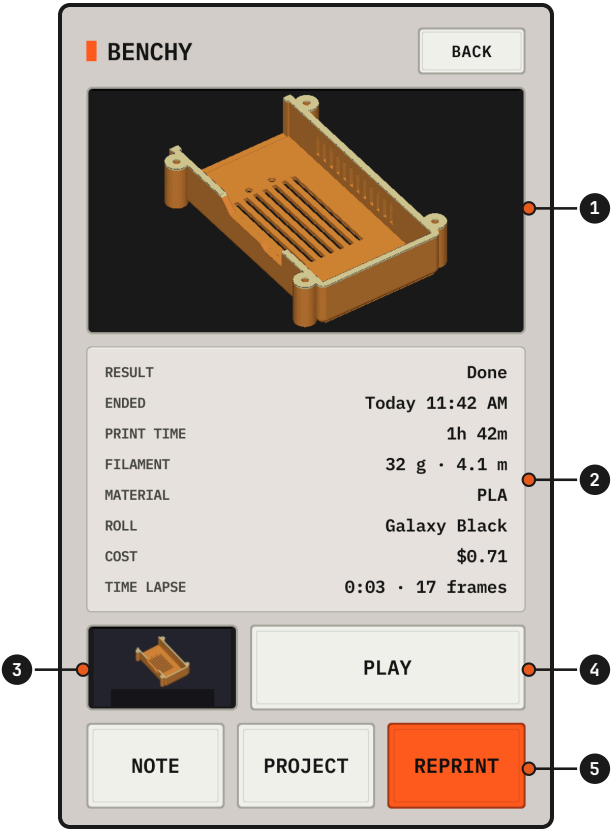
> Zoom to the part zooms the picture of each viewer. The time lapse then uses most of the picture of the camera.

Statistics



1. **Totals.** The prints, the success rate, the time and the filament.
2. **Results.** Done (amber), cancelled and failed (red).
3. **Details.** The filament, the average and longest print, and the recent prints.
4. **History.** Each print with its result. Tap a print to see it or print it again.

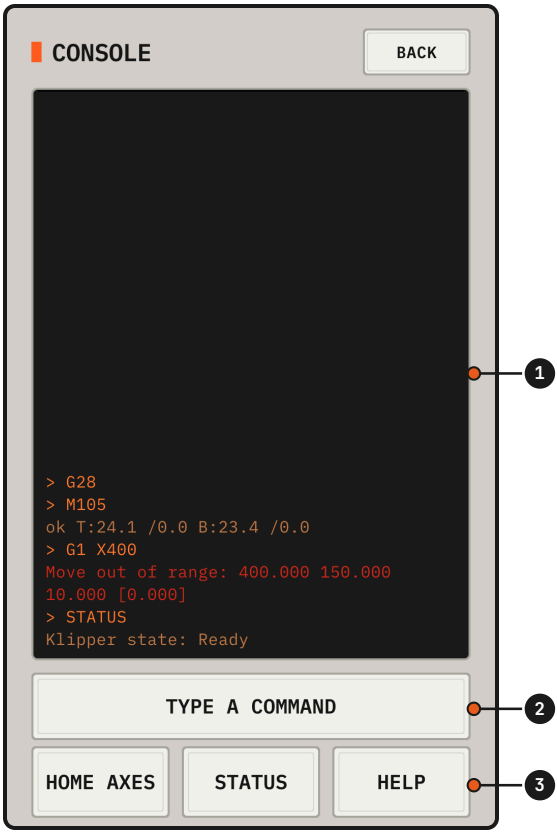
A print of the history



1. **Model.** The model of the print.
2. **Details.** The result, the time, the filament and the time lapse video.
3. **Still.** The last frame of the time lapse video.
4. **Play.** Opens the player.
5. **Reprint.** Prints the file again.

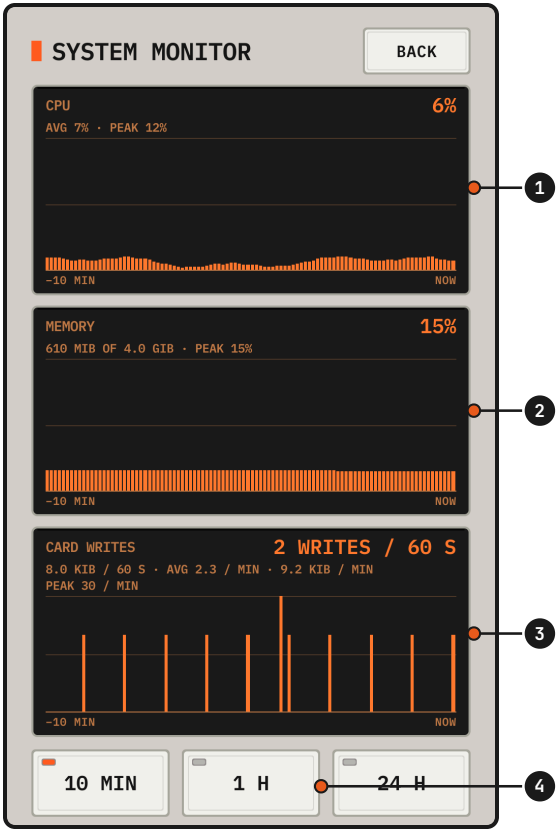
The deck keeps the last 3 videos. The record of an older print shows Removed.

The console



1. **Replies.** Your commands, the replies, and errors in red.
2. **Type a command.** Opens the keyboard.
3. **Quick keys.** Home (G28), Status (STATUS) and Help (HELP).

The System monitor



1. **CPU.** The CPU use.
2. **Memory.** The memory in use.
3. **Writes.** The SD card writes a minute.
4. **1 h.** 10 minutes, 1 hour or 24 hours.

The samples stay in memory. A restart clears them.

Update the Printdeck

The deck checks for a new version once a day. Machine then shows Software update in orange.

The deck installs only a signed version. If the new system fails to start, the deck goes back to the old one.

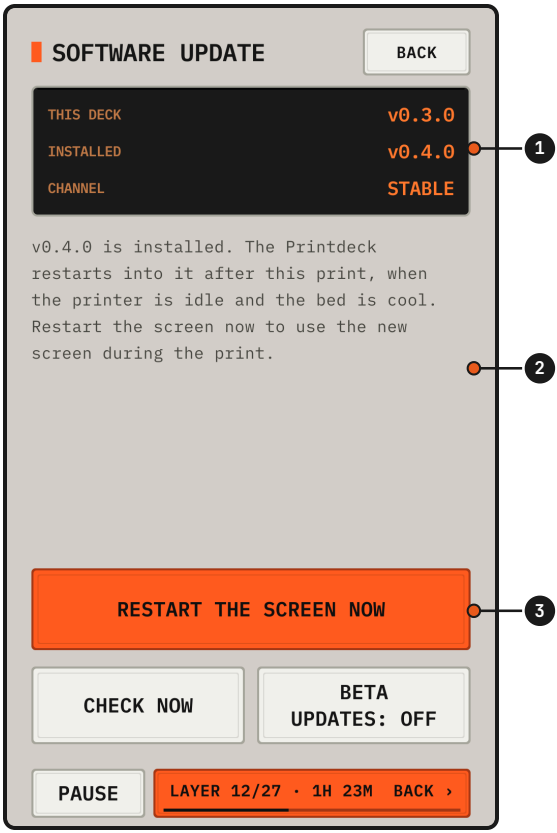
1. Open Machine, then Software update.
2. Read the notes of the new version, then tap Install.
3. Wait for the download. With no print, the deck restarts into the new version.
4. During a print, the deck installs the update and the print continues. Machine shows Update ready. The deck restarts into the new version after the print, when the printer is idle and the bed is cool.

Software update



1. **Versions.** This version and the newest version.
2. **Notes.** What the new version changes.
3. **Install.** Installs the new version, after a question. With no print, the deck restarts. During a print, the deck restarts after the print.
4. **Check now.** Checks for a new version now.
5. **Beta updates.** On: the deck also gets beta versions.

An update installed during a print



1. **Versions.** This version, and the installed version that waits for the restart.
2. **Notes.** The deck restarts into the update after the print, when the printer is idle and the bed is cool.
3. **Restart the screen now.** Runs the screen of the update now, after a question. The screen is dark for a few seconds. The print keeps running.

Restart the screen now shows only when the new screen works with the running Klipper. The time lapse and the share link of the print continue.

With no print, the key is Restart now.

Back up your data

A backup is one file with your rolls, history, settings, API keys, paired phones and Klipper config. Make a backup before you change the SD card.

Keep the backup password safe. Without it, no one can restore the backup.

The backup excludes the deck password and the Wi-Fi network.

1. Open http://printdeck.local/system in a browser, and log in with the password of the deck.
2. Under Backup, type a backup password of 8 characters or more, two times. To add the G-code files, select Include the G-code files.
3. Click Download the backup. The browser saves a file with the name printdeck-backup-NAME-DATE.pdbk.
4. To restore, open the same page when no print runs. Under Restore, type the backup password, choose the file, then click Restore.
5. Klipper and the Printdeck restart. A wrong password or a damaged file changes no data.

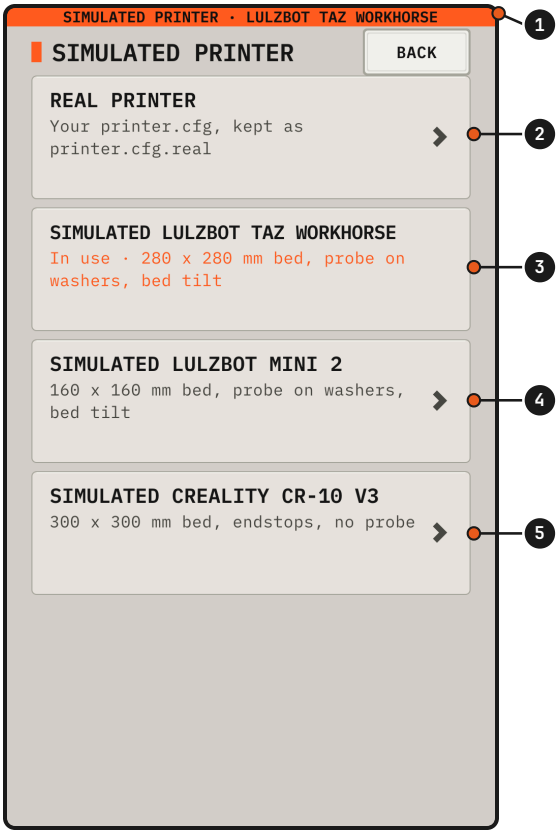
Try the deck with a simulated printer

The simulated printer heats, homes, probes and prints in real time, and no motor moves. Use it to learn the deck or to test a file.

Your printer.cfg stays as printer.cfg.real until you tap Real printer.

1. Open Machine, then Maintenance, then Simulated printer. The setup screen also has this key.
2. Tap the printer to simulate, then Simulate. Klipper restarts with the simulated printer.
3. Print as on a real printer: send a file from the slicer, or tap Print a file.
4. To stop the simulation, open Machine, then Maintenance, then Simulated printer. Tap Real printer, then Go back. Klipper restarts with your printer.cfg.

A simulated printer in use



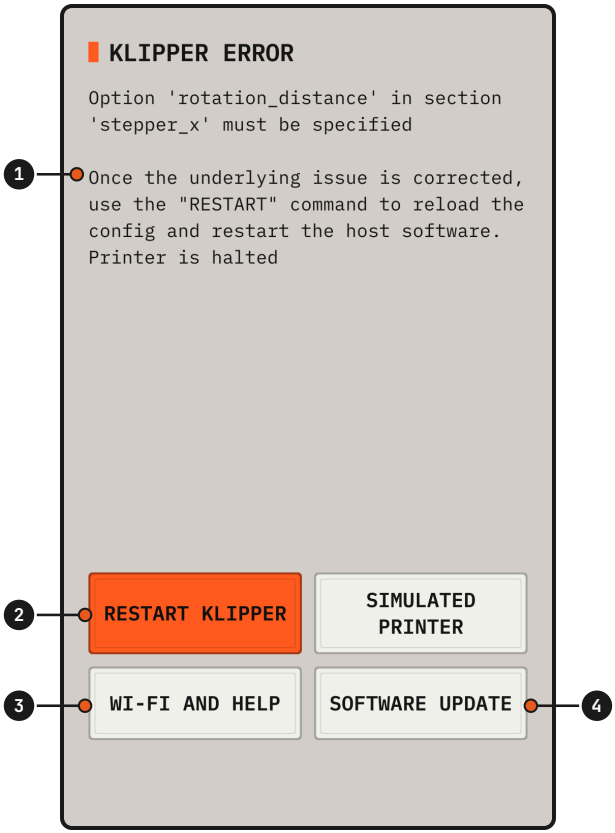
1. **Simulated.** An orange band shows a simulated printer.
2. **Real printer.** Puts your printer.cfg back and restarts Klipper.
3. **Simulated LulzBot TAZ Workhorse.** A probe on four washers, and bed tilt. Here it is in use.
4. **Simulated LulzBot Mini 2.** A probe on four washers, and bed tilt.
5. **Simulated Creality CR-10 V3.** Endstops on each axis, and no probe.

When something goes wrong

When Klipper stops with an error, the deck shows the message.

1. Read the message. It often names the setting in printer.cfg.
2. After a stop or a power cut of the printer, tap Firmware restart.
3. After a change to printer.cfg, tap Restart Klipper.

A Klipper error



1. **Message.** The Klipper error.
2. **Restart Klipper.** Reads printer.cfg again.
3. **Wi-Fi and help.** The network, the address and the password.
4. **Software update.** Installs a new version. It can fix the problem.

Settings

The file printdeck.txt on the PRINTDECK partition holds the settings. Put the SD card in a computer to change it. The deck reads it at each start, and clears the Wi-Fi password in it.

`wifi_ssid, wifi_password, wifi_country`	The Wi-Fi network
`name, hostname`	The name that slicers show, and the name on the network (hostname.local). Settings, Name on the deck sets both
`timezone`	The time zone
`display_rotate`	The screen turn: 90 or 270 turns a wide display to tall, 0 or 180 keeps the native shape. Empty is 0 for a tall display (the Touch Display 2) and 270 for a wide display
`touch_invert_x, touch_invert_y, touch_swap_xy`	1 turns an axis of the touch screen
`preheat_tool, preheat_bed`	The temperatures of Preheat with no filament set
`night_from, night_to`	The hours of the night colors
`printer.cfg (a file)`	A Klipper config. The deck imports it at the next start.

Printdeck is free software: AGPL-3.0, with the Go port of Klipper under GPL-3.0. The deck draws every picture of this booklet.

https://github.com/beetlebugorg/printdeck