MonoPrinter.com

MONO3-MZ2/4 (MK2) Setup & Alignment

Rev. 1.3

Revision History

Document number: MZ-01

Rev. 1.0	1-26-2023	Initial draft
Rev. 1.1	4-24-2023	Update for MZ4
Rev. 1.2	8-18-2025	Update for MZ2/4 (MK2), FW: 2.3Z / 1.8S
Rev. 1.3	2-10-2026	Update for PDC projectors, FW: 2.4Z / 1.9S

Please read thoroughly and contact us if you have any further questions or suggestions at
info@monoprinter.com

ASSEMBLY

1. Packing list

- MONO3-MZ2 or MZ4 printer system
- Acrylic covers with 2 x handles and screws
- Z-axis assembly with mounting screws (m8 x 8 mm, 8 ea)
- Regular resin vat (56 x 35 x 25 mm) and matching platform
- Large resin vat (100 x 50 x 25 mm) and matching platform
- USB microscope and a platform mount
- Alignment target
- Power cord
- Ethernet cable (6 ft.)

> **INFO** **MONO3MZ2 (or MZ2)** refers to 2-channel printer (365 + 405 nm), while **MONO3MZ4 (or MZ4)** refers to 4-channel printer (either of 365 or 405 + RGB projector)

[You will need]
- 2, 2.5, 3.0 mm hex driver
- You will need a long (>5") 2.5 mm hex driver (ex. Bondhus 3754) to access the dichroic mirror linear stage
- Filter adjustment: 2.0 mm hex driver for tilt and horizontal alignment
- Commercial resin for testing the printer: B9C HD Slate was used to test the printer on our site.

2. Install Z-axis and acrylic cover

- The Z-axis of the MZ2/4 (MK2) has its stepper motor assembled together (*Fig. 1*) with a motor and sensor cable.
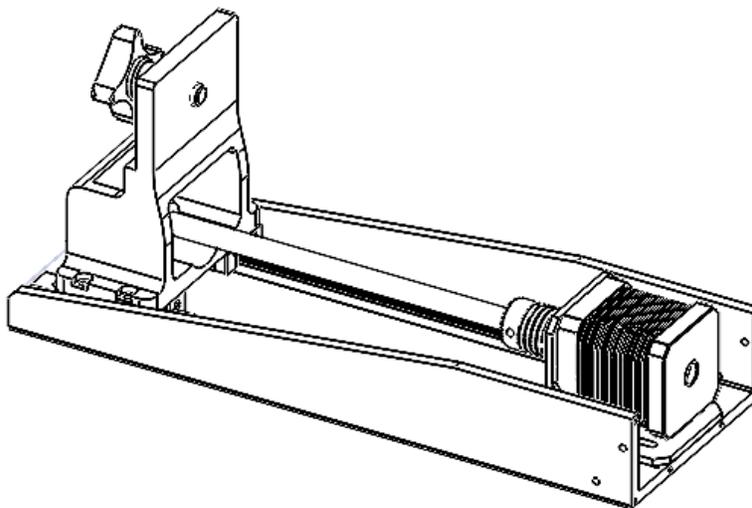- Take out all parts from packages, then install the Z-axis assembly (*Fig. 2-A*).

Fig. 1. MONO3MZ2 Z-axis assembly

- Tighten 8 x m4 screws to fix the Z-axis on the top plate (***Fig. 2-A***).
- Plug the motor and sensor cable (aviation connector, GX16 type) to the port indicated.
- The next step is to assemble the acrylic back cover (***Fig. 2-B***). Lock down its position using 8 x m4 screws.
- The front cover needs two side handles. Assemble them using m5 x 10mm screws (***Fig. 3***).
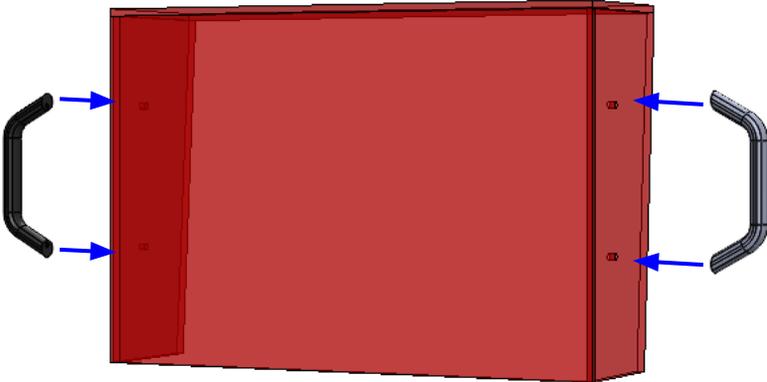
A | Install the Z-axis

B | Install the acrylic back cover
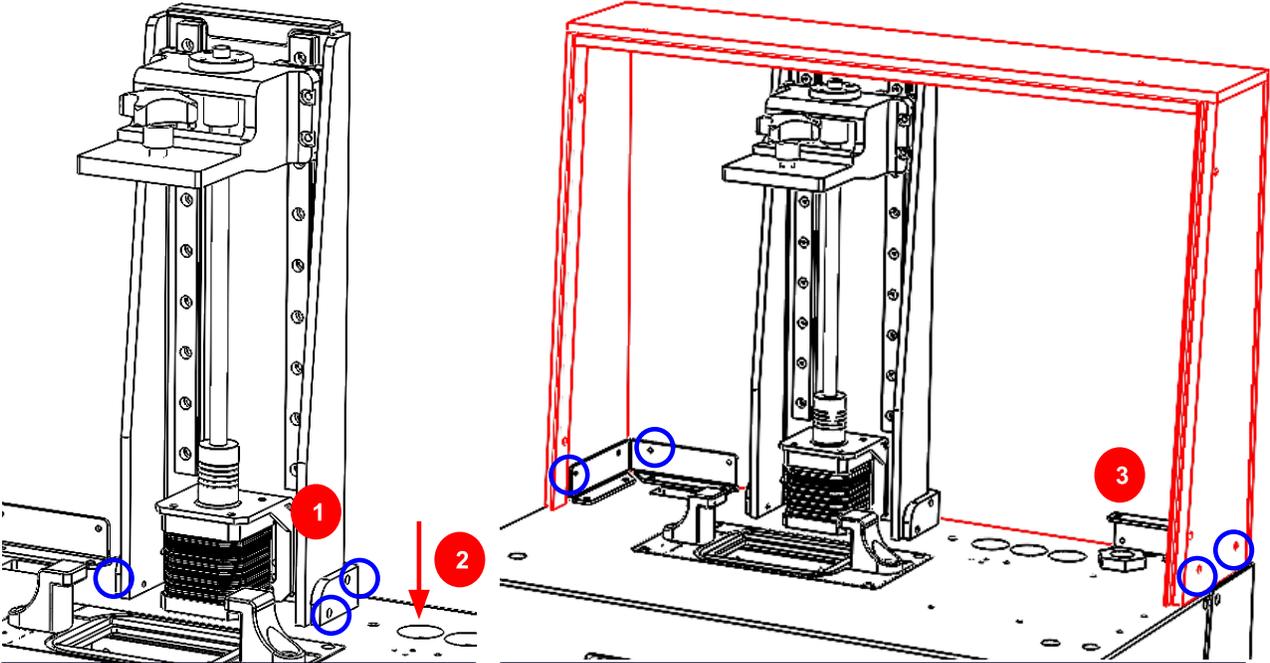
1. Tighten 8 x m4 screws to assemble the Z-axis
2. Plug the motor & sensor cable

3. Tighten 8 x m4 screws to assemble the acrylic back cover

Fig. 2. Install procedure for the Z-axis and acrylic back cover

Assemble handles using m5 x 10 mm screws

Fig. 3. Assembly of the front acrylic cover with handles

3. Powering up and projector connection

- Plug the power cord and turn on the printer.
- It will take 1-2 mins to boot up the printer and be ready to start.

INFO The booting time might be minimized if you connect the printer to the router, but normally it will take 1 min to start the printer.

- When the printer boots up successfully, you will see the main menu (***Fig. 4***)
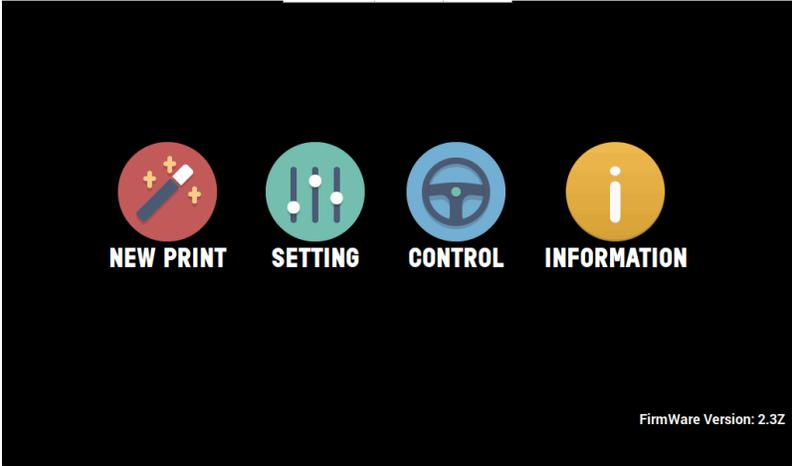

Fig. 4. Printer home screen

- Check the Printer-Firmware manual for detailed information. The current firmware version is **2.4Z-v2**.
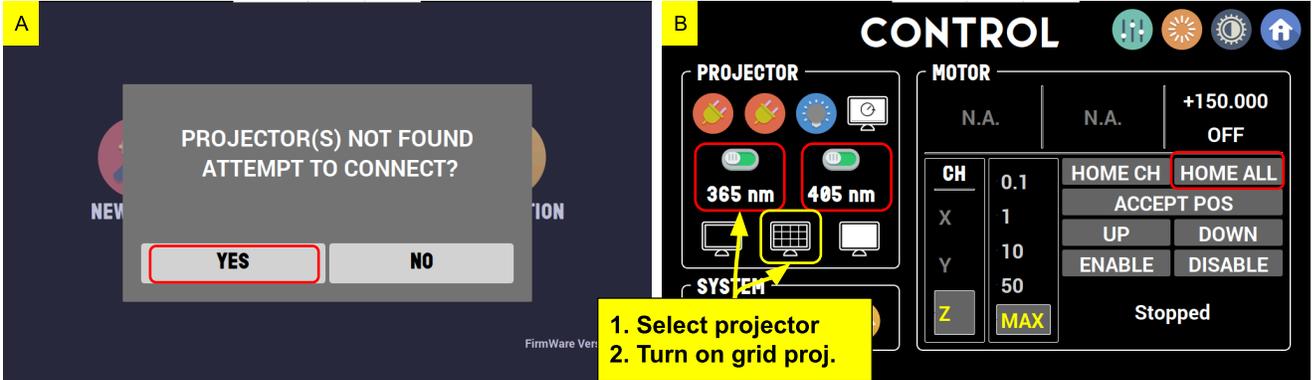- You will need to manually connect the projector from the printer (***Fig. 5***).

Fig. 5. Control page (MZ2) for homing and projection test

INFO This manual includes explanations for both MONO3MZ2 & MZ4. MZ2 has two single channel projectors (normally 365 nm and 405 nm) while MZ4 has one single channel projector (365 or 405 nm) and one RGB projector. Pictures in this manual might be different depending on the printer configuration.

> **INFO** Check the manual about Mono3Z printer firmware before proceeding.
> 📄 MN3Z-C02-MONO3Z_Printer_Firmware.pdf

- On the home screen (*Fig. 4*), press the **CONTROL** button (*Fig. 5*). Then if you're asked to connect projectors, press YES. It will take up to 1-2 mins to connect the projectors if the configuration is correct. Once moved to the *Control page*, perform **HOMING** (*Fig. 5-B*). The default z-position is 145-150 mm.
- Place the alignment target on the build surface, then turn on grid projection (*Step 2*).

> **CAUTION** *UV is coming from projectors.* Do not look at the build surface without any target.

> **CAUTION** *Check the LED value for both projectors*. The MK2 printers use projectors from multiple manufacturers. Some projectors will have light output even with zero intensity set value. Check the minimum light intensity possible from the *System Report* that was provided with your printer.
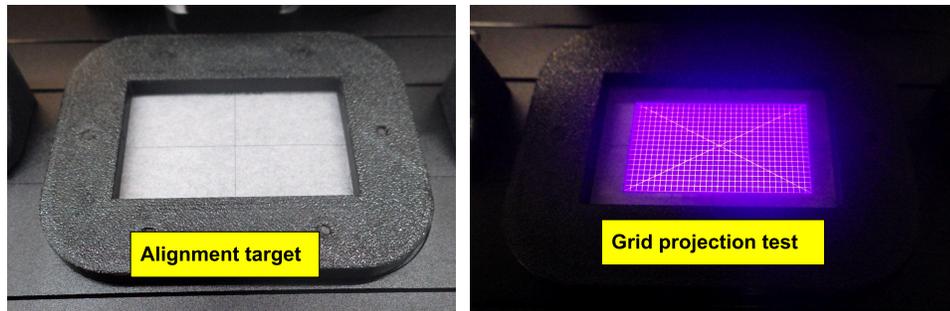

Fig. 6. Alignment target and grid projection test on it

4. Mount the build platform and resin tank (vat)

- Mount the build platform on the build arm and tighten the hand screw

> **INFO** The build platform has been calibrated in factory

- Mount the resin tank (vat) and rotate both vat clamps
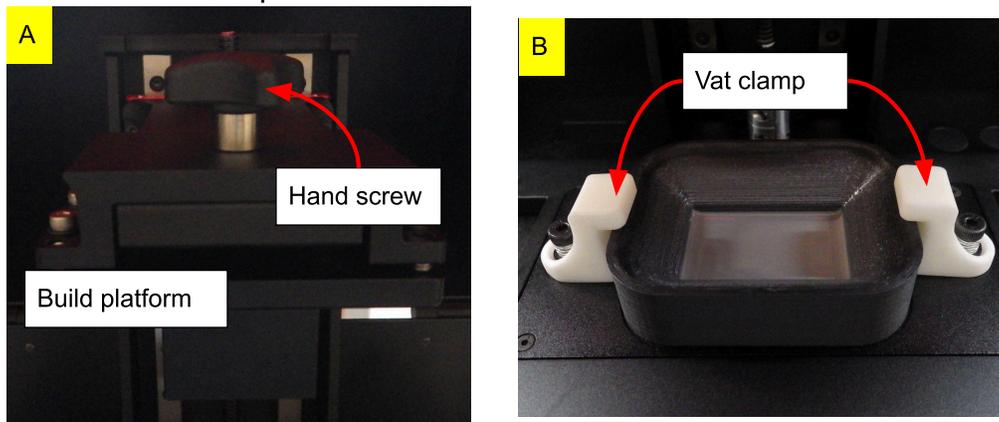- Pour resin with 3-4 mm depth.

Fig. 7. Mounted build platform and resin tank (small sized version)
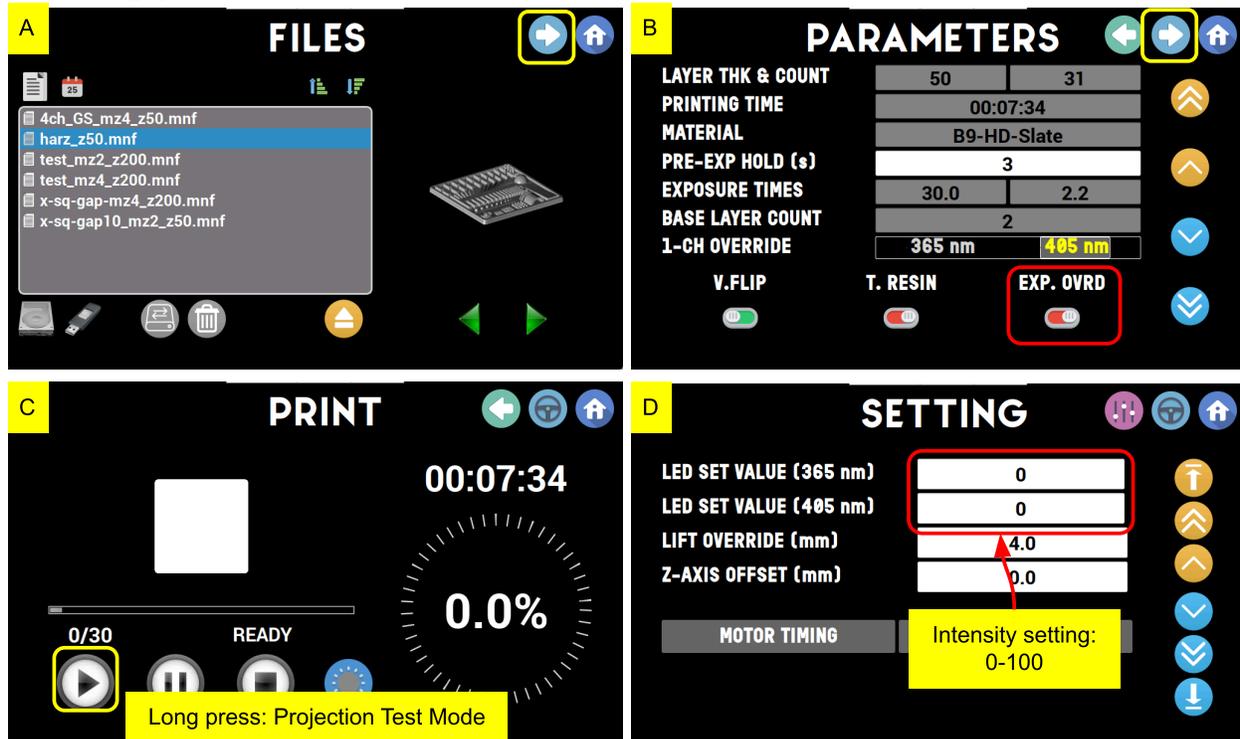
5. Printing process

Fig. 8. Select a printing file and change exposure parameters

- ***Fig. 8*** shows a brief process of file selection and parameter changes.
- There are a couple of pre-uploaded files on the printer.
- Select one of them (***Fig. 8-A***) and press the next button (yellow box).
- On the parameters page, you can change the exposure parameters by turning on "EXP. OV" button (***Fig. 8-B***). ***This option is only available for 1-channel printing files. If the printing job uses multiple LEDs, this option won't be visible.***
- Press the next arrow button, then you will be directed to the ***PRINT page*** (***Fig. 8-C***).
- The LED intensity can be changed on the ***SETTINGS page***. The first parameter is for 365 nm and 405 nm (***Fig. 8-D***).

6. Post-processing
- General procedure can be found on below link
- https://www.matterhackers.com/articles/how-to-print-clean-and-post-process-sla-3d-prints
- Briefly you need to take 3 steps for regular commercial resins.
  - Detach the complete prints from a build plate.
  - Immerse the prints in an IPA bath for more than 5 mins. Manual agitation will be enough for some resins, however if you are using a wax based resin or thick resins, ultrasonic double bath will be helpful. In this case, 2-4 mins with the ultrasonic bath will clean the print surface.
  - After taking the prints from the IPA bath, remove excessive IPA of the print surface by air blow. The final step is curing with UV. A cheap nail curing station will be enough to cure small prints.

- Check the first printing manual in the Mono3Z manuals whose process is similar to MZ2 and MZ4 printers.

  INFO 📄 MN3Z-C04-MONO3Z_First_Printing.pdf

PROJECTOR ASSEMBLY

7. Projector manipulation

- Before moving to the alignment process, this section explains projector assemblies and how to use them for the alignment and adjustment. There are three types of projector assemblies.
  - **[1] EKB E4750LC UV: single channel LED (365 or 385 or 405 nm)**
  - **[2] EKB E4750LC RGB: three LED channels**
  - **[3] ZS PDC04: single channel LED (365 or 385 or 405 nm)**

A

Ethernet port

Focus dial

Mounting screws (m4 x 10)

Stage dial

- When switching projectors, *two cables (19-24V power connector & ethernet cable)* should be removed and connected.
- E4750LC-UV projectors have a *stage dial* to move the whole assembly forward & backward

B

Ethernet port

19-24V Power connector

C

displayServer
192.168.0.208
405 nm
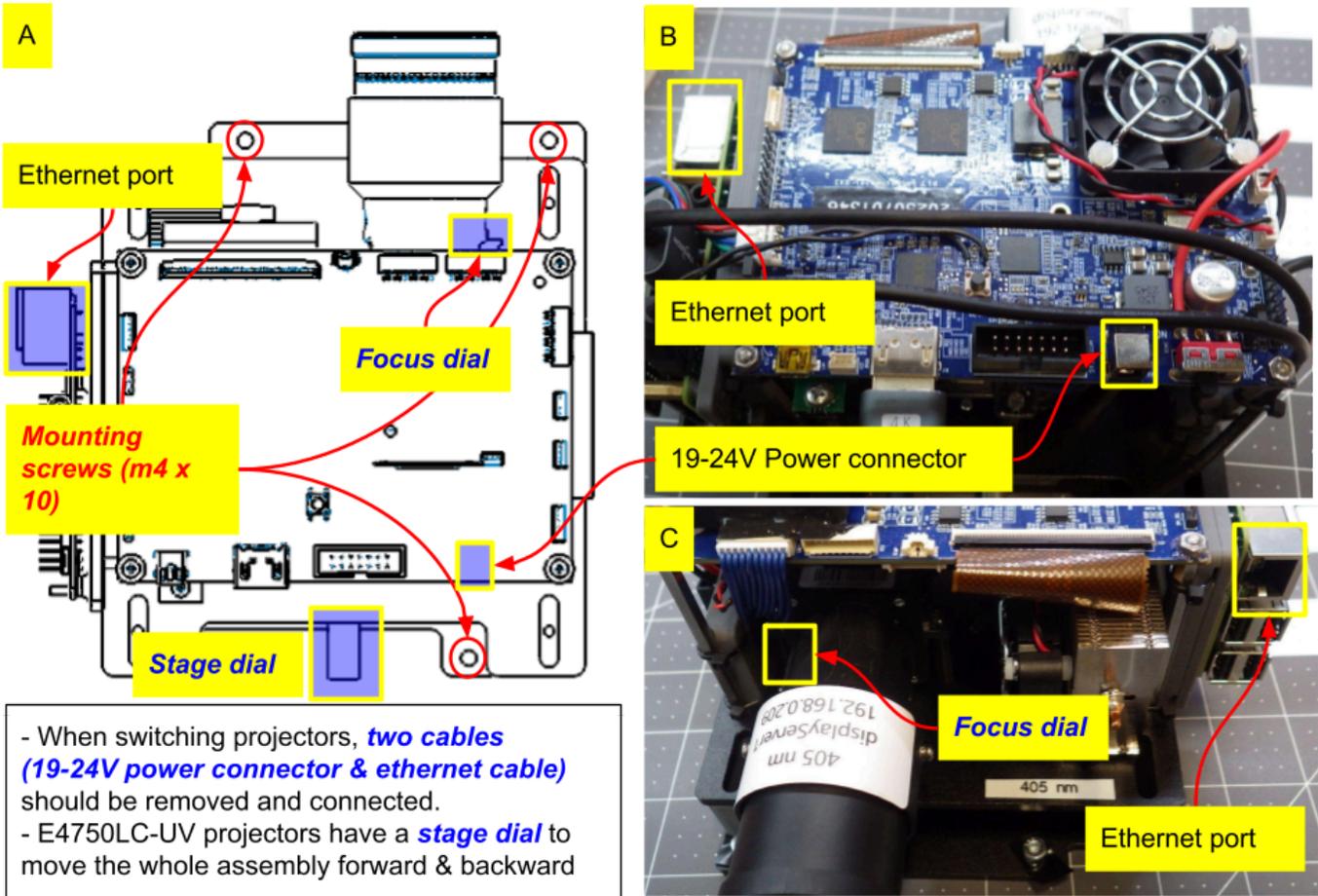
Focus dial

405 nm

Ethernet port

Fig. 9. **[1]** EKB E4750LC UV projector assembly

- Each projector has its own Raspberry Pi computer and 5V power supply integrated.

- Each projector also has a focus dial (Fig. 9-A and 9-C). Use this dial to adjust the focus on the build surface.
- Each E4750LC UV projector is mounted on a linear stage to allow moving the projector forward and backward. *You can adjust the pixel size by the stage dial and the focus dial*.
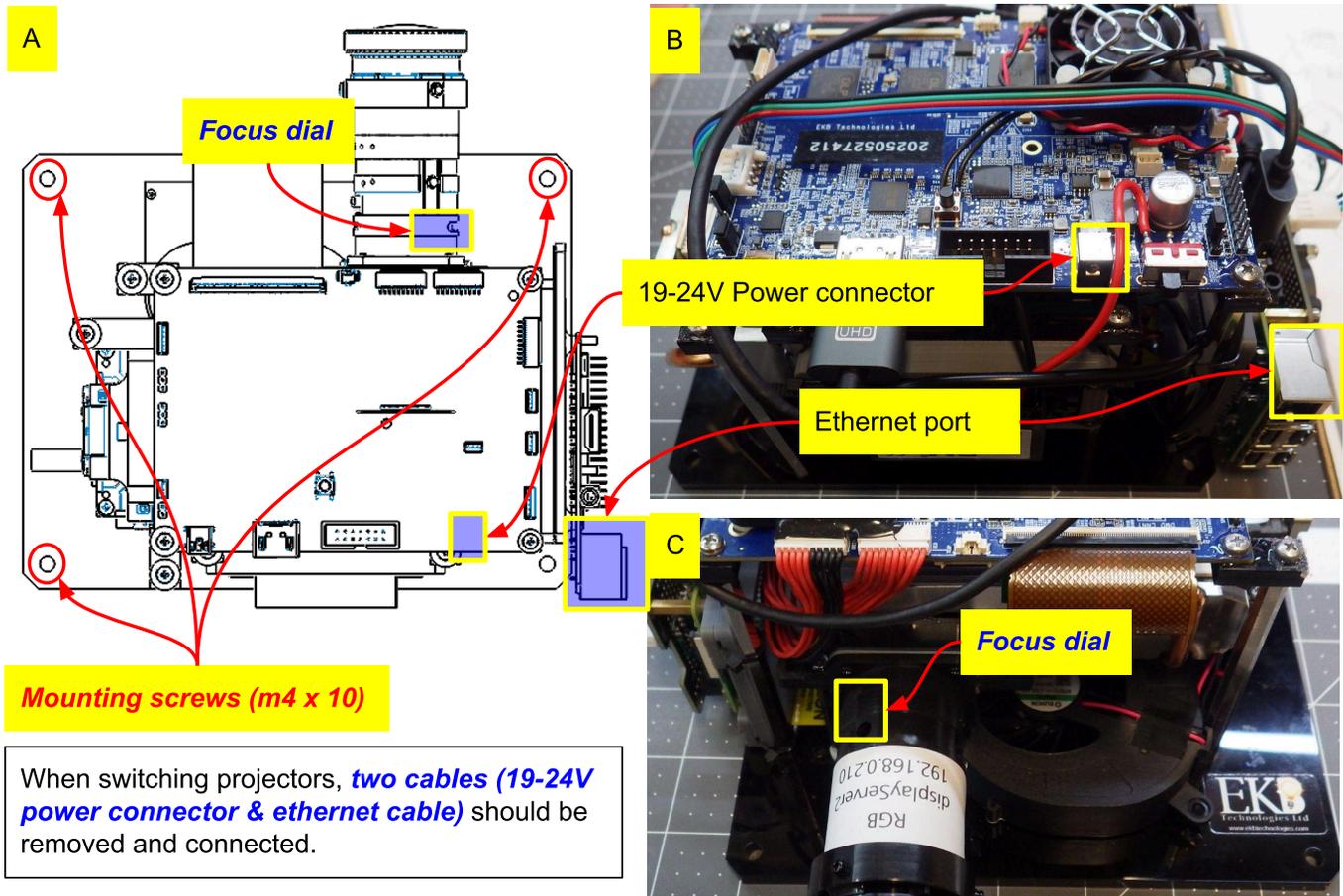

A — Focus dial — Mounting screws (m4 x 10)

When switching projectors, *two cables (19-24V power connector & ethernet cable)* should be removed and connected.

B — 19-24V Power connector — Ethernet port

C — Focus dial

Fig. 10. **[2]** EKB E4750LC RGB projector assembly

- The E4750LC RGB projector is assembled on the acrylic base plate and does *NOT* have a linear stage.
- Once it's mounted on the printer, you can only adjust the focus. The final pixel size should be adjusted using the printer firmware (*Advanced Setting → Global zoom*).
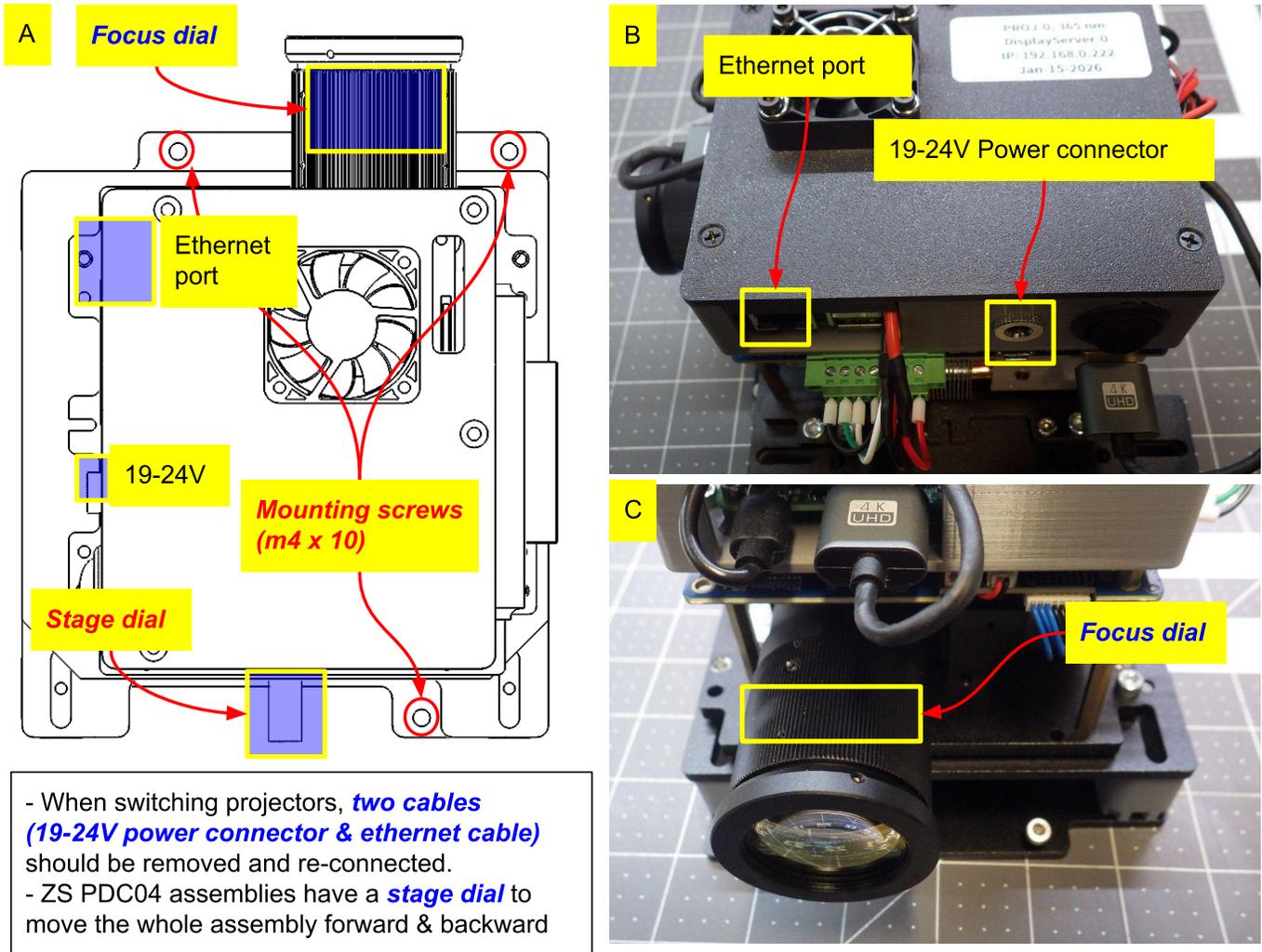
A **Focus dial**

Ethernet port

19-24V

Mounting screws (m4 x 10)

Stage dial

B Ethernet port

19-24V Power connector

C **Focus dial**

- When switching projectors, *two cables (19-24V power connector & ethernet cable)* should be removed and re-connected.
- ZS PDC04 assemblies have a *stage dial* to move the whole assembly forward & backward

Fig. 11. **[3]** ZS PDC04 UV (365 or 385 or 405 nm) projector

PROJECTOR ALIGNMENT (HARDWARE)

CAUTION *This section describes how to align two projectors. Do not manipulate adjusters unless there is misalignment or blurred images.*

INFO Projector alignment can be done either by hardware or firmware. *MZ2* has two projectors having identical projection lenses, which means *the pixel size can be matched using the same global zoom parameter (0.8 by default)*. *MZ4*'s RGB projector has a different projection lens, therefore *the global zoom value needs to be adjusted to match the pixel sizes and alignment*.

8. Open front cover and detach touch screen

- In order to access the internal components of the printer, the front cover and touch screen assembly should be removed and detached.
- The front cover is fixed using 6 x m3 screws. Remove them as shown in *Fig. 12*.

INFO If the front cover is stuck to the frame even after you remove all screws, loosen the other m3 screws on the rear cover. The rear cover might hold the front cover.

- The touch screen assembly is attached to the mainframe using 4 x m4 screws. You can *loosen* them to take out the assembly.

  CAUTION *Loosen the lower two and then upper ones*. The touch screen assembly is heavy and can fall after you loosen all screws.
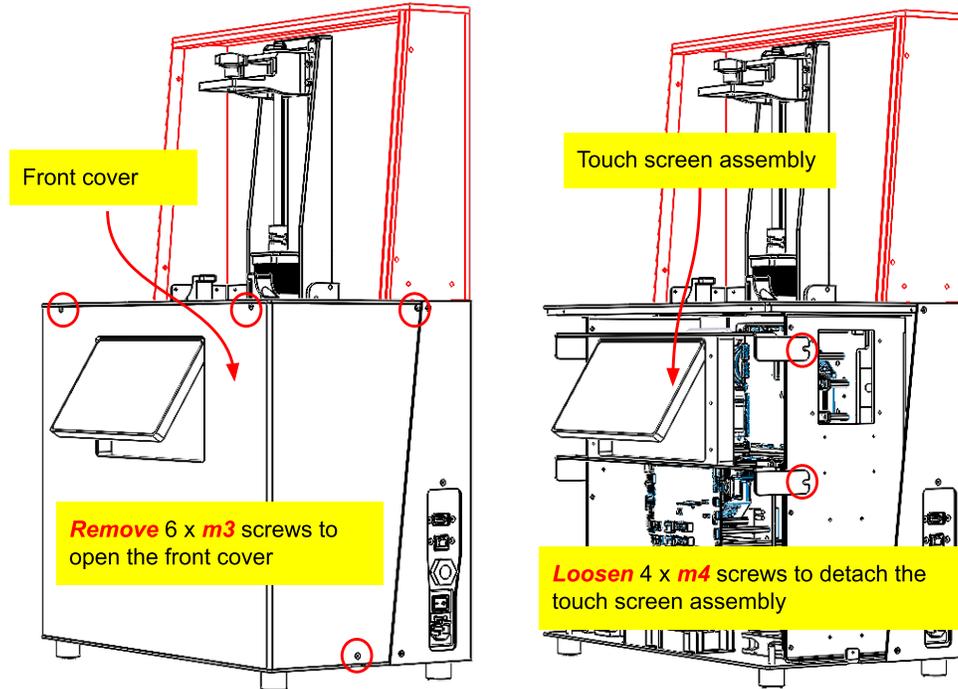

Front cover

Touch screen assembly

Remove 6 x *m3* screws to open the front cover

Loosen 4 x *m4* screws to detach the touch screen assembly

Fig. 12. Removal of the front cover and touch screen assembly

9. Go to Advanced control page

- Go into the *Advanced control page* (*Fig. 13*)
- In this page, you can adjust LED values and projection images without LED time out.

  INFO LED values are between 0 (min) and 100 (max).

  CAUTION *LED timeout is disabled in the page*. *Do not leave the LED ON for a long time at a high intensity*.

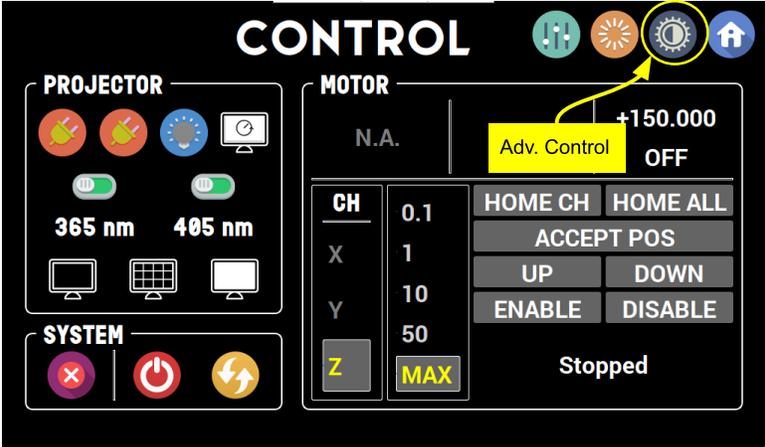 **CAUTION** *The DMD chip will degrade quickly under a high intensity UV light.* Try to use a lower value whenever possible.

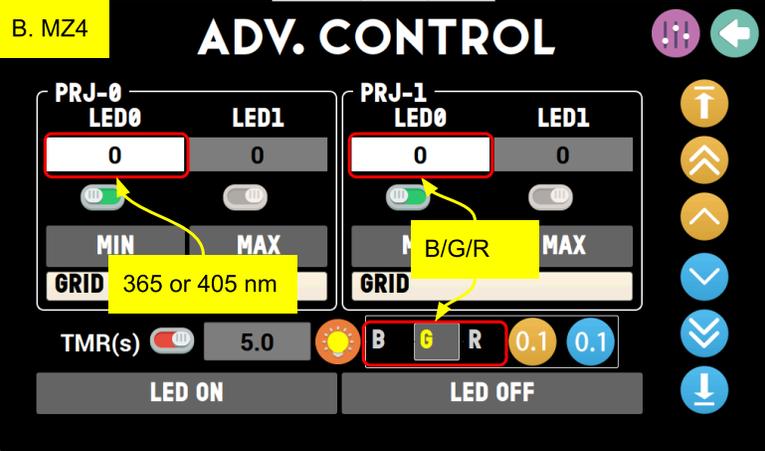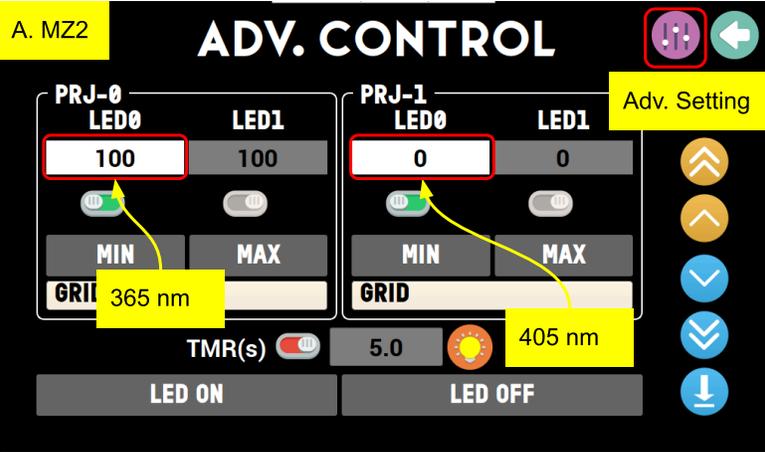Fig. 13. How to go into Advanced control page

Fig. 14. Advanced control page (MONO3MZ2 / MZ4)

- With the **MZ2** printer, the **Advanced Control** page shows two channels (PRJ-0 LED0 & PRJ-1 LED0) while the **MZ4** shows the extra selection on the bottom for Blue / Green / Red on the bottom.

    INFO Without the B/G/R selection, no light will come out from the PRJ-1.

10. Mount USB camera and launch a camera app on PC

Adjust position

Adjust focus

Alignment target

Camera app on computer
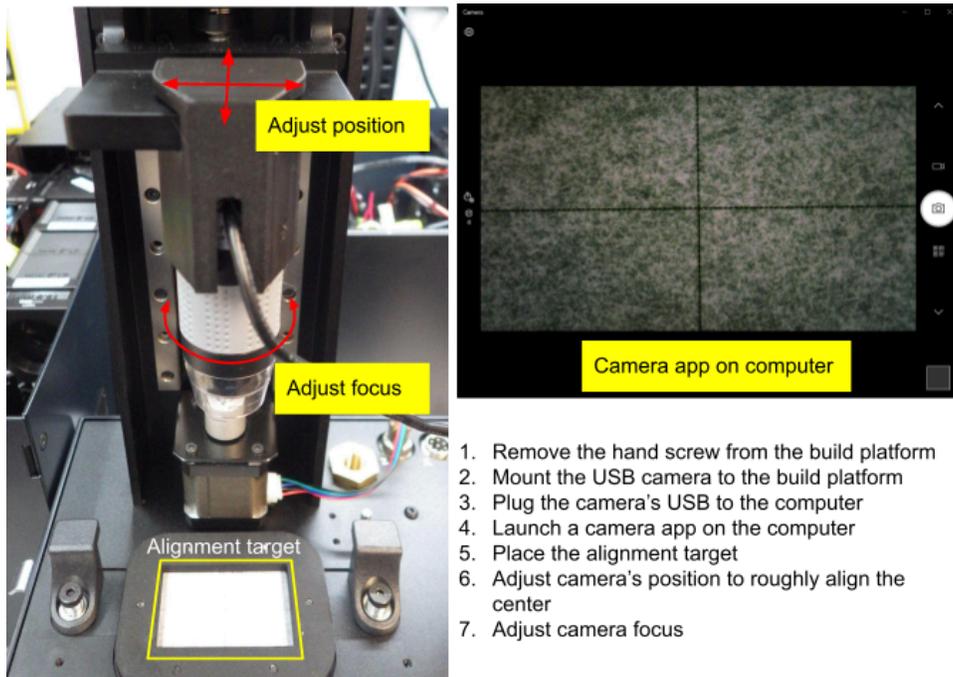
1. Remove the hand screw from the build platform
2. Mount the USB camera to the build platform
3. Plug the camera's USB to the computer
4. Launch a camera app on the computer
5. Place the alignment target
6. Adjust camera's position to roughly align the center
7. Adjust camera focus

Fig. 15. Mount of USB camera and alignment target

- The z-axis position is not critical, but the maximum height (150 mm) will give the largest field of view.
- Run camera App and set a resolution to the maximum (2 MP with included USB camera)

11. Overview of the alignment process

- Alignment will be done with **Adv. Control** and USB camera images.

  INFO *Consider the Proj-1 (longer wavelength) as a reference and adjust the Proj-0 (short wavelength) as the Proj-1 passes through the dichroic mirror with no pattern change.*
- Adjust the LED intensity values. The following LED values are reasonable for alignment.
    - 365 nm: 100
    - 405 nm: 0-10 with a global dimming of *0.5 (Adv. Setting)*
    - RGB: 0-10 with a global dimming of *0.5 (Adv. Setting)*
- Turn on both projectors with grid patterns. Identify which misalignment is present.

  CAUTION *Both projectors should be turned on to monitor the grid patterns.*
- There are 5 types of misalignment (*Fig. 16*)
    - Case 0: Trapezoidal projection of Proj-0
    - Case 1: Grid patterns are not parallel, angular misalignment
    - Case 2: Different grid size (pixel size), scale misalignment
    - Case 3: Horizontal misalignment
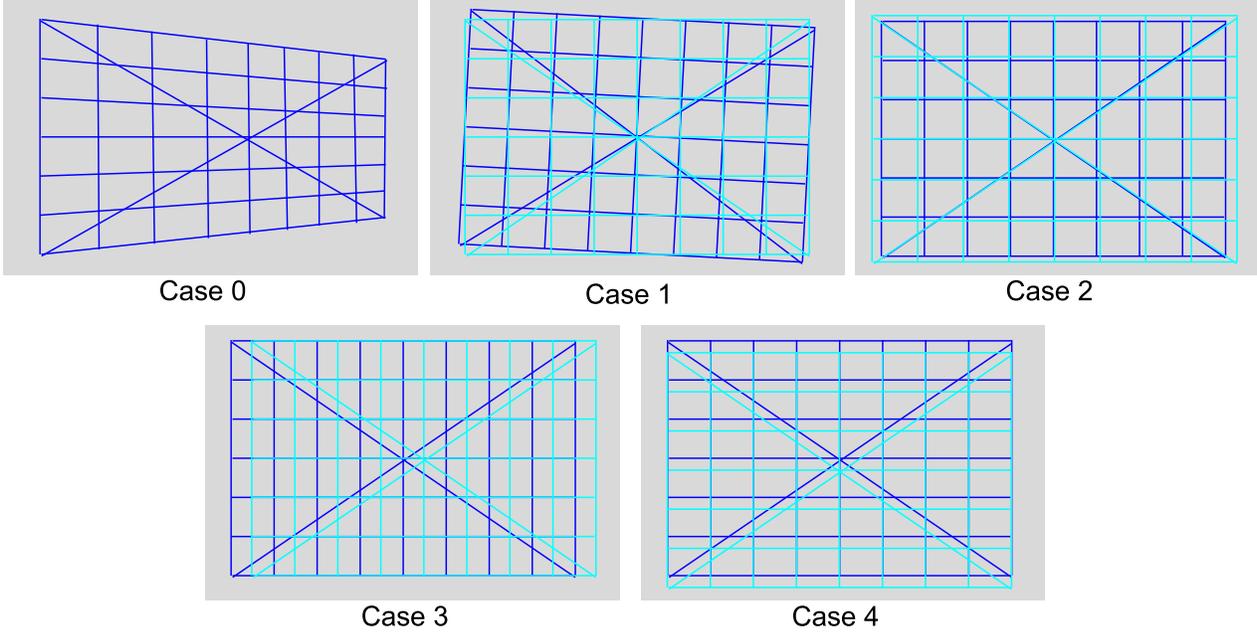   - Case 4: Vertical misalignment

Case 0   Case 1   Case 2

Case 3   Case 4

Fig. 16. Misalignment cases (blue: 365 nm, cyan: 405 nm)

12. Case 0, 3: Trapezoidal projection & Horizontal misalignment
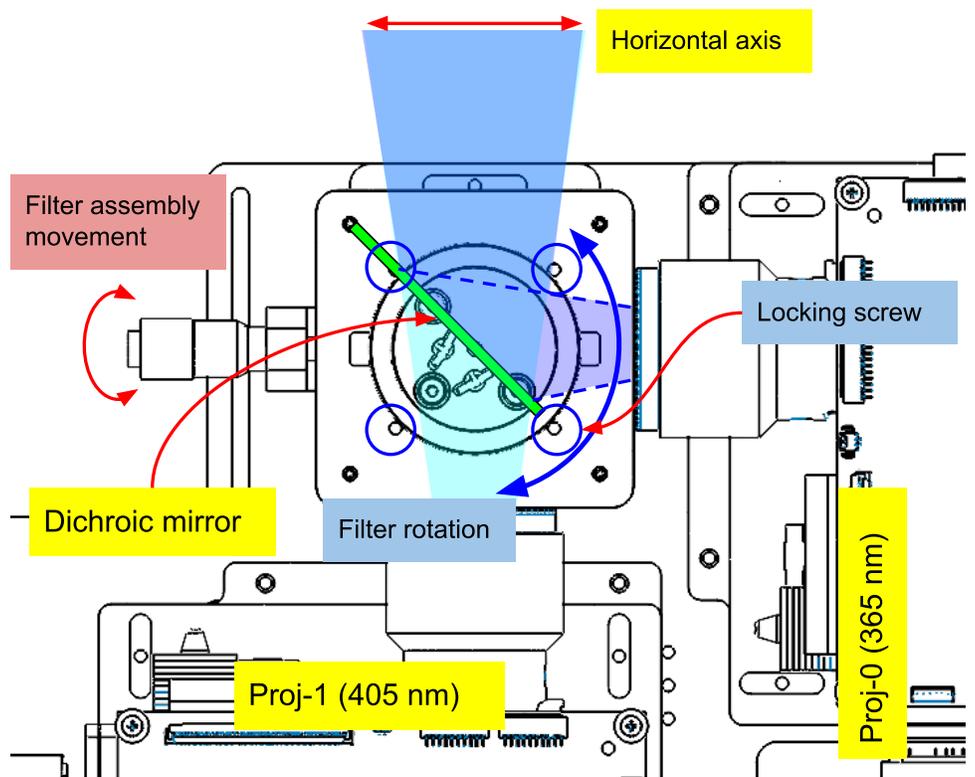

Fig. 17. Dichroic filter and projector assembly

- Basically two projectors are aligned and combined by a dichroic mirror (**Fig. 17**).

- The long wavelength (405 nm) just passes through the dichroic mirror, thus the adjustment of the dichroic mirror does not affect the position of the Proj-1. This means if you want to move the Proj-1 projection, you need to move the projector itself.
- If you experience the **trapezoidal projection** from the Proj-0 (*Case 0*), it's mainly due to an **incorrect angle of the dichroic mirror**.
- The ideal angle of the dichroic mirror is 45 degrees, but if the angle is too much deviated from this angle, the left and right side have different vertical lengths and both sides are out of focus.
- In this case, adjust the filter rotation near to 45 degrees as shown in Fig. 17 and check the left and right side to see if their height is the same and they are both in focus.
- If there is a horizontal misalignment (*Case 3 in Fig. 16*), there are two options. Both options will move the Proj-0 (365 nm) and align it to the longer wavelength.
- Option 1: move a whole filter assembly horizontally using a linear stage underneath (*Fig. 17*).
- Option 2: rotate the filter slightly to move the Proj-0 horizontally.

  CAUTION *Loosen 4 x locking screws before moving the filter stage (marked in blue, 5/64" or 2mm hex driver is needed).*

  CAUTION *Do not rotate the filter too much. This will cause the trapezoidal projection as stated above (**Case 0**).*

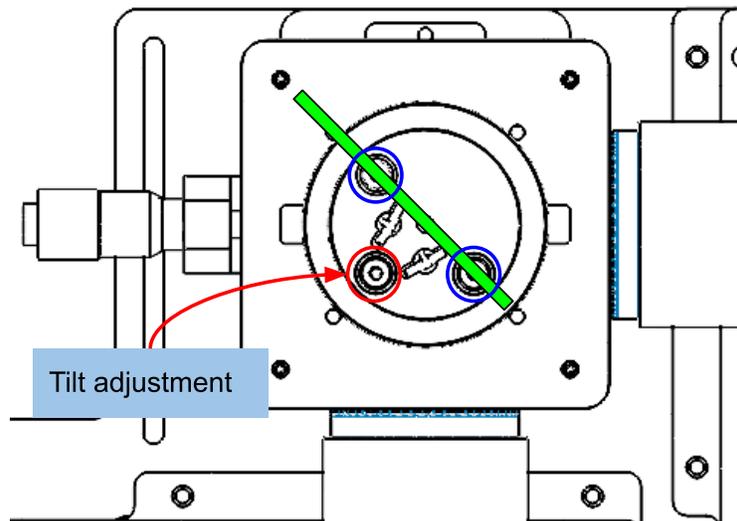## 13. Case 1: Angle misalignment

Fig. 18. The tilt adjustment of the dichroic filter

- If two grid patterns are not parallel, there is angular misalignment. You can adjust the tilt angles by rotating two adjusters in *Fig. 18* (red circles)
- Watch carefully the grid patterns while you rotate the adjusters.
- **CAUTION** *This action will cause vertical and/or horizontal misalignments*, which means once you make both grid patterns parallel each other, you might need to perform those alignments.

14. Case 2: Scale misalignment

INFO The scale misalignment procedure using a linear stage applies to *E4750LC-UV and ZS PDC04 projectors*. With the *E4750LC-RGB projector*, the scale adjustment should be done in firmware (*Settings* >> *Adv. Setting* >> Global zoom).

- If the overall size of the grid patterns are slightly different, you will notice the grid pitch is different from the USB camera.
- Then you need to change the working distance of the projector to match the grid pitch (or projection size).
- For example, if the 405 nm projection has a slightly smaller than the 365 nm, you have two options, but moving the projector underneath a dichroic filter (405 nm in this case) might be a simpler option than moving the Proj-0.
- To make the grid pitch small, move the projector towards (forward) the dichroic mirror.
- After moving the projector, the focus should be adjusted using the projection lens focus dials (Fig. 19)
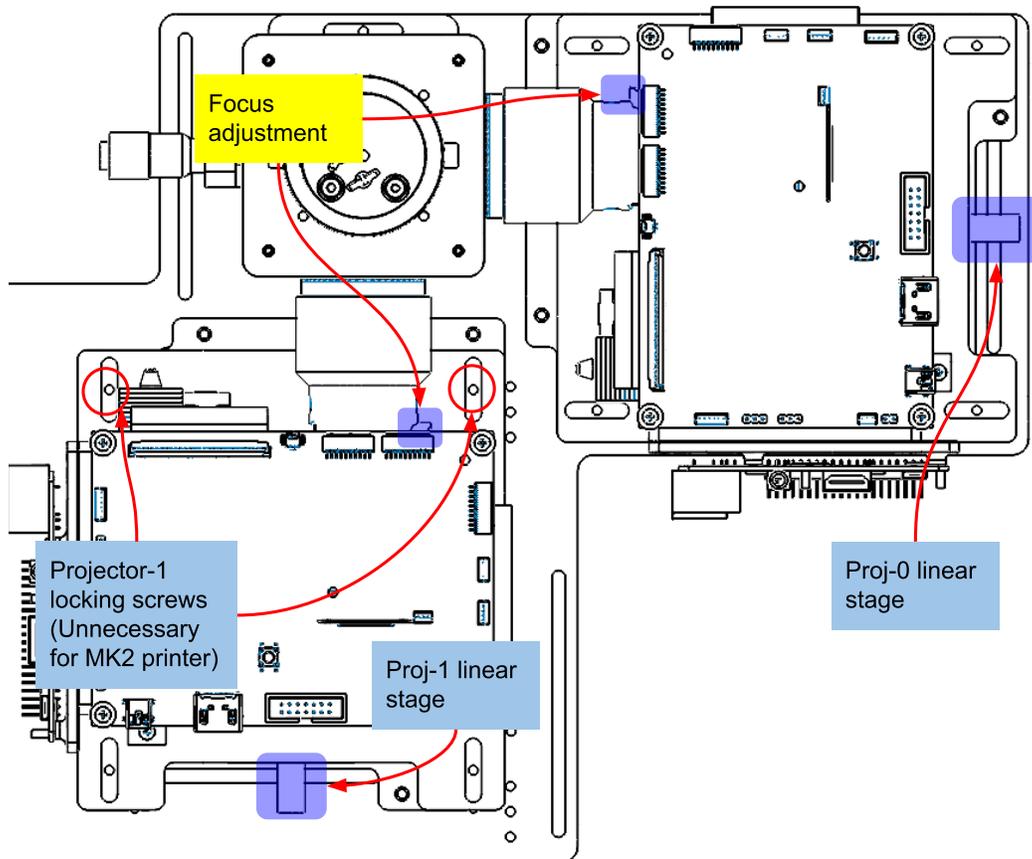

Fig. 19. Working distance and focus adjustment for matching a pixel size
(*MZ2 with 2 x E4750LC UV projectors*)

15. Software assisted alignment

- The projection alignment via hardware is ideal for the most case, but *if two projection lenses have quite different characteristics and there is vertical misalignment*, it's not possible to align them physically. In this case, one of the projections can be adjusted to have matched projections between two projectors.
- In the MZ4, the RGB projector has a bigger native pixel size (> 40 microns), thus projections are processed to have the same pixel size and matching positions.
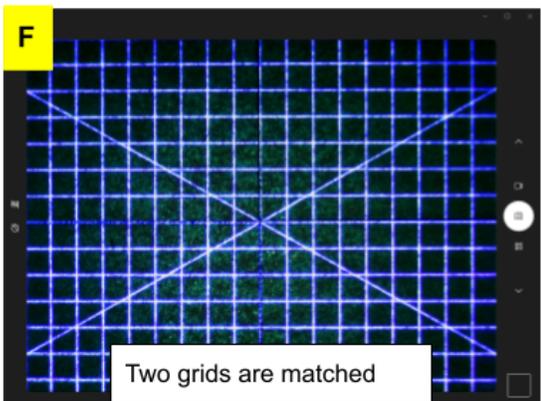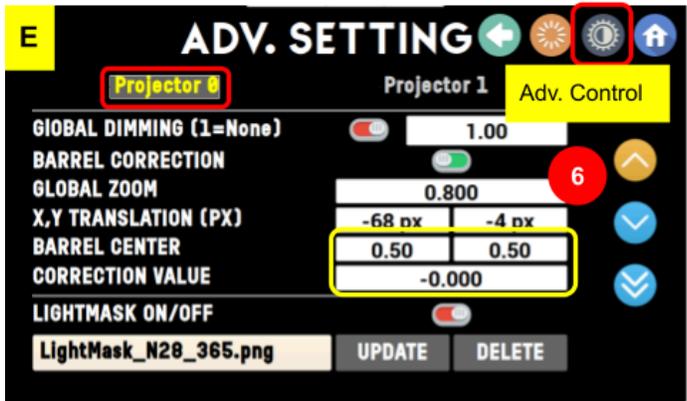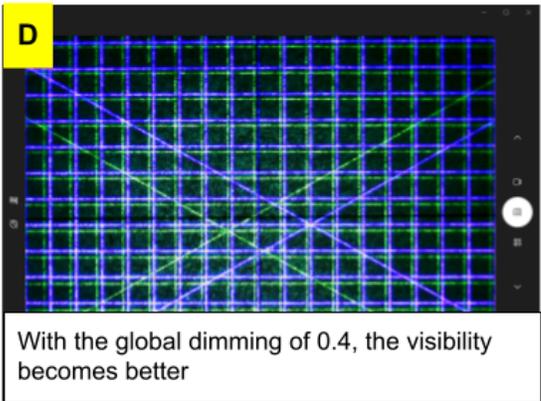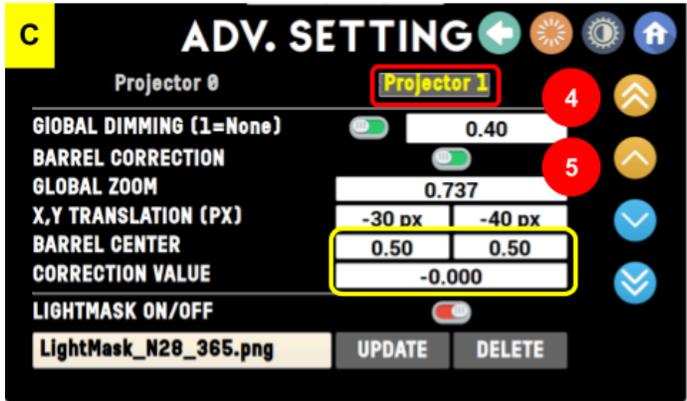

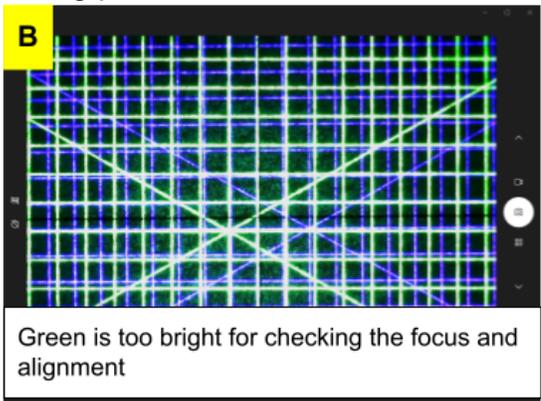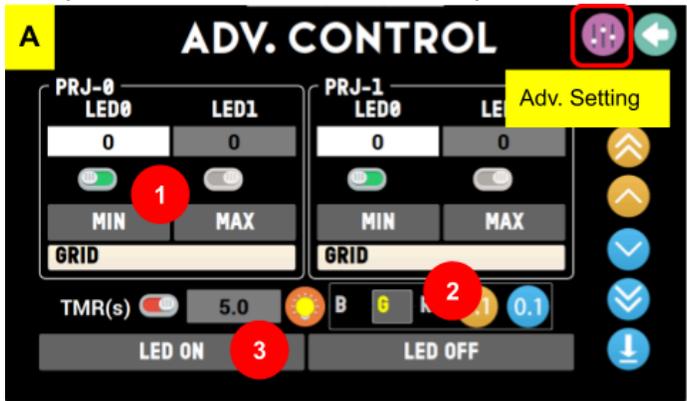Fig. 20. Software alignment procedure

- The first step is identifying the status of the alignment. *Fig. 19-A* shows the *Adv. control page* on the printer to project UV (405 nm) and Green grids from two projectors.
- *Fig. 20-B* shows the misalignment between two projectors. The green channel is too bright without a global dimming. If you have the angle misalignment in the stage (*Case 0 in Fig. 16*), adjust the filter rotation and adjusters to make both grids parallel each other.
- *Making them parallel is the first step* and this should be done by the dichroic mirror adjustment. Please see Angle misalignment. Slightly adjust the dichroic mirror mount to make two grids parallel to each other. There should be scaling and position misalignment, which should be corrected in the following steps.
- The green channel (Proj-1) is too bright compared to the 405 nm (Proj-0), it's better to make the green dim using the *Global dimming* parameter (*Fig. 20-C*). Here we set it to 0.4 (**Step 4**).
- Once you make sure the grids are parallel to each other, you adjust the scaling factor of the RGB projector to match the grid size as shown in *Fig. 20-C, Step 5*. Enable the Barrel correction and set the *Global zoom* to make both grids to have the identical pitches. Here we set it to 0.737.

  CAUTION *Turn off the Global dimming* *after the alignment. This will alter the light intensity while printing if it's enabled.*

  INFO Once you turn on the LEDs on the *Adv. Control*, *the LEDs stay ON until you manually turn them off*. Keep them ON and navigate to the Adv. Setting screen (Home >> Settings >> Adv. Settings) to adjust the scaling and positions.

- If you adjust the *Global zoom*, the grid size will change and you will find an optimal parameter as shown in *Fig. 19-D*.
- Then move the grids by XY Translation values (*Fig. 19-C, E*) to obtain final alignment (*Fig. 19-F*).

  CAUTION *Don't forget to turn off the LEDs after you complete the alignment.*

  CAUTION *Don't alter the* *Barrel Center and Correction Value* *as they will change the rectangular shape*

Table 1. Example of Adv. Setting parameter values

Adv. Setting parameters	MONO3MZ2 (365 + 405 nm)		MONO3MZ4 (UV + RGB)	
	Proj-0 (365 nm)	Proj-1 (405 nm)	Proj-0 (UV)	Proj-1 (RGB)
Global zoom	0.8	0.8	0.8	0.737
X, Y translation	+28, +9	+23, -19	-68, -4	-30, -40
LightMask	365: **ON** (LightMask_N28_365.png), 405 & RGB: **OFF**			

SWITCHING PROJECTORS & DICHROIC MIRROR

> **CAUTION** *This section describes how to remove and install two projectors & a matching dichroic mirror. If you have any questions before and while you perform this procedure, contact us.*

> **INFO** There are two dichroic mirrors for the MZ4 printer configuration. Choose the filter based on your configuration.
> - LPF (longpass filter) T387lp: 365 + RGB
> - LPF (longpass filter) T425lp: 365 + RGB or 405 + RGB

- Brief procedure will be
  - Remove Proj-1 → Proj-0 → Dichroic mirror assembly
  - Install a new Dichroic mirror assembly & rotate by 45 degrees
  - Install Proj-0 → Proj-1
- The dichroic mirror's two surfaces have different coatings: **the arrow pointed side has a dielectric coating** for short wavelength reflection while **the other side has an anti-reflection coating** for long wavelength transmission (**Fig. 21-B**).
- If your printer has the E4750LC-UV projectors, mount the filter asymmetrically as shown in **Fig. 21-C**. This is because of the shorter throw ratio of the projection lens compared to the one from the ZS PDC04 projectors.
- The three adjusters of the dichroic mirror assembly should look like in **Fig. 21-A**.
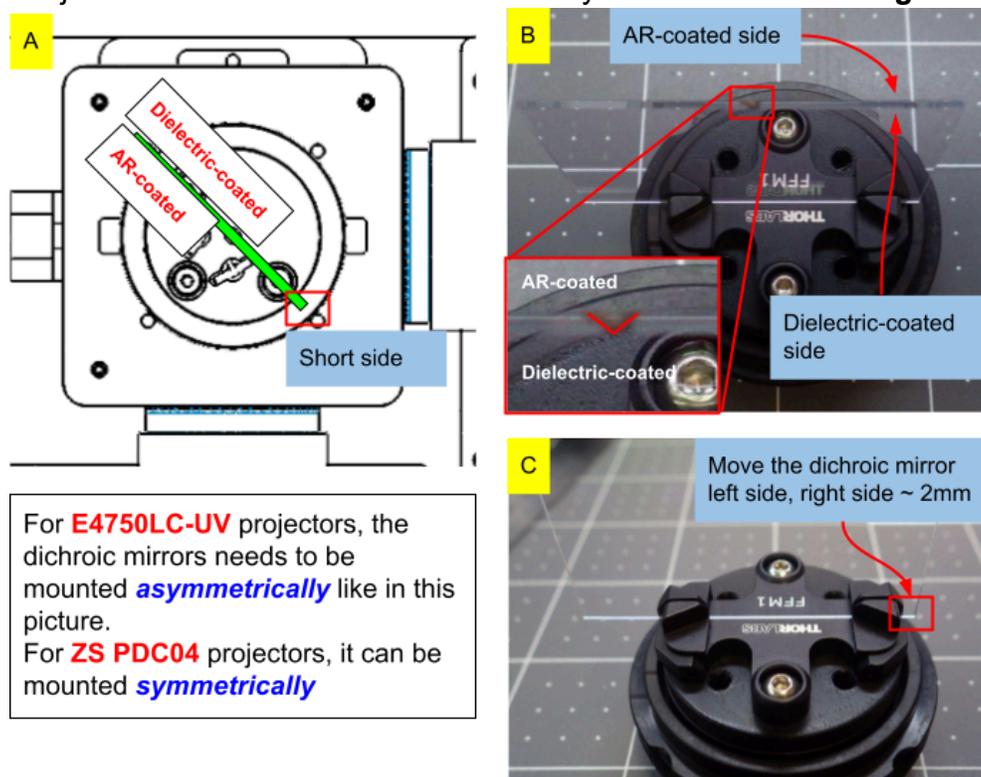

For **E4750LC-UV** projectors, the dichroic mirrors needs to be mounted *asymmetrically* like in this picture.
For **ZS PDC04** projectors, it can be mounted *symmetrically*

Fig. 21. Dichroic filter assembly mount

- When removing or installing projectors, check the positions of mounting screws (*Fig. 9, 10*). You need to disconnect two cables (power and ethernet connectors) before removing mounting screws.
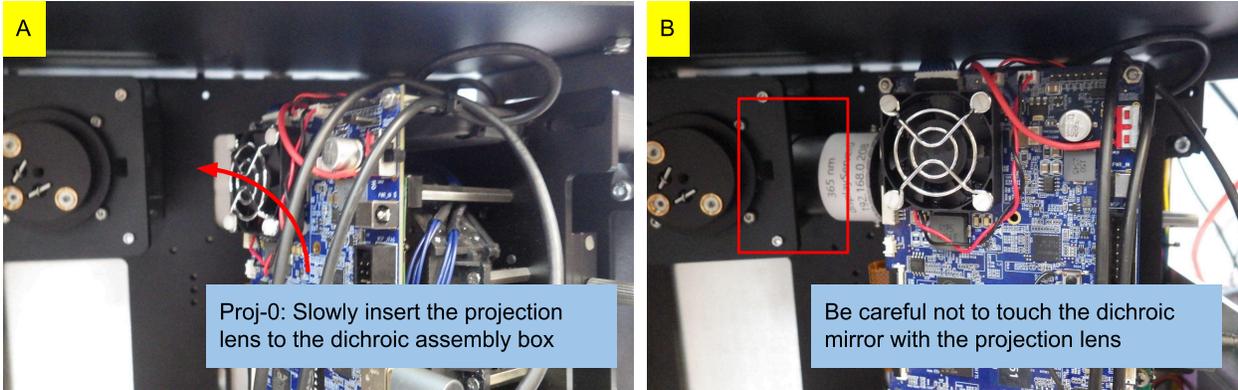

Fig. 22. Projector mounting guide stoppers

CAUTION *When mounting projectors, be careful not to touch the dichroic mirror with the projection lens.*

- There are projector mounting guide stoppers (**Fig. 23**) for projectors. With the *-UV projectors* (365 & 405 nm), the *notches* on the projector assembly bottom plate will match with these stoppers. The *RGB projector* does not have the notches, thus place the projector above these stoppers (*Fig. 23-C*) and tighten the 3 x mounting screws.
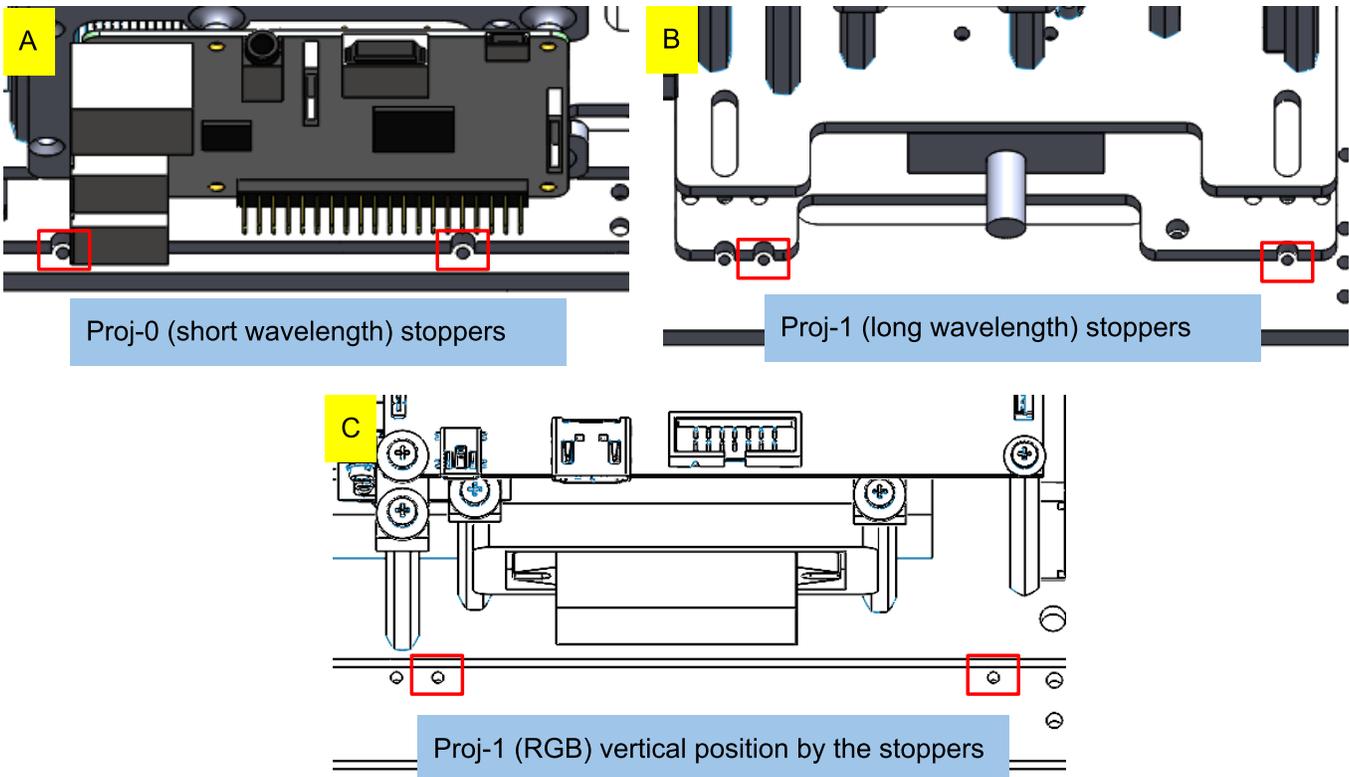
-

Fig. 23. Projector mounting guide stoppers
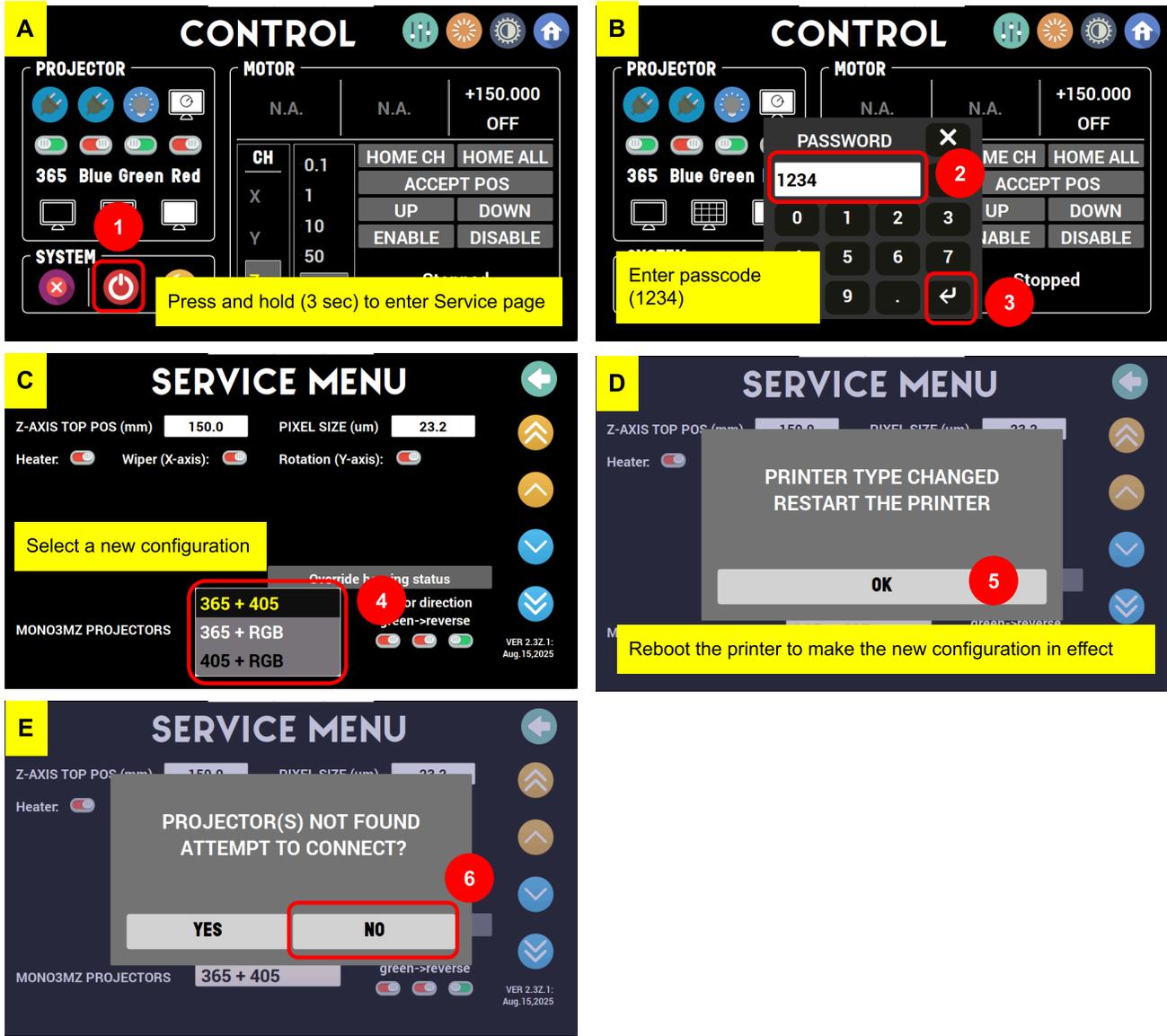
PROJECTOR CONFIGURATION IN SERVICE MENU

Fig. 24. Change of the projection configuration on the Service page

- Once you install a new set of projectors, you need to change the firmware accordingly as shown in *Fig. 24*.

  INFO When you are prompted to connect projectors, press NO to save time. If you press YES, the printer will try to connect projectors whose IP Address is not correct. This will take 1-2 mins. Rebooting without projector connection would be the fastest once you change the printer configuration.

TWO COLOR PRINTING FOR VERIFYING ALIGNMENT

INFO Check Mono3Z manuals about single color or multicolor printing
- 📄 MN3Z-C03-Job_File_Preparation.pdf
- 📄 MN3Z-C08-MONO3Z4_4CH_Printing.pdf

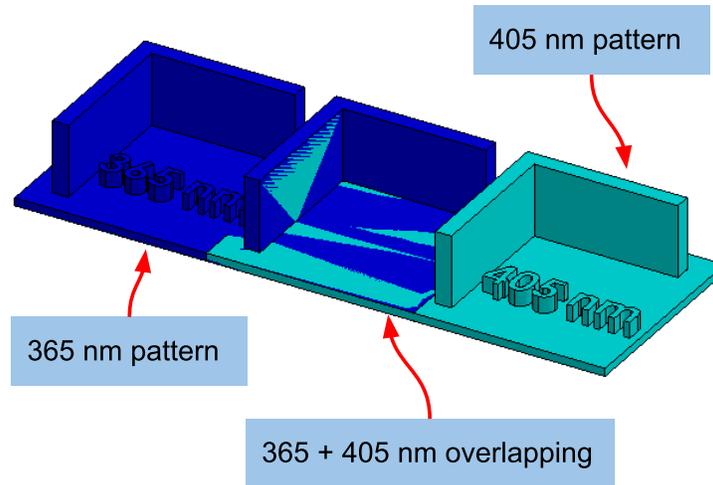## 16. Prepare alignment test structure in Solidworks

Fig. 25. L-shape alignment test pattern

INFO L-shape alignment pattern
- ○ Solidworks file: L_shape_5mm_2Ch.SLDPRT
- ○ 3MF file: L_shape_5mm_2Ch.3MF

INFO Flat alignment pattern
- ○ Solidworks file: vz_PL20_flat_align.SLDPRT
- ○ 3MF file: vz_PL20_flat_align.3MF

- Both alignment test pattern has two color parts: Blue (0, 0, 255) for the 365 nm part and Cyan (0, 255, 255) for the 405 nm part.

  CAUTION *You have to keep a separate body (check off 'merge') in order to assign different 'appearance' in Solidworks.*

  CAUTION *When you export the pattern to a 3MF file format, you have to include 'appearance' property as well. Check on this in the file export option window.*
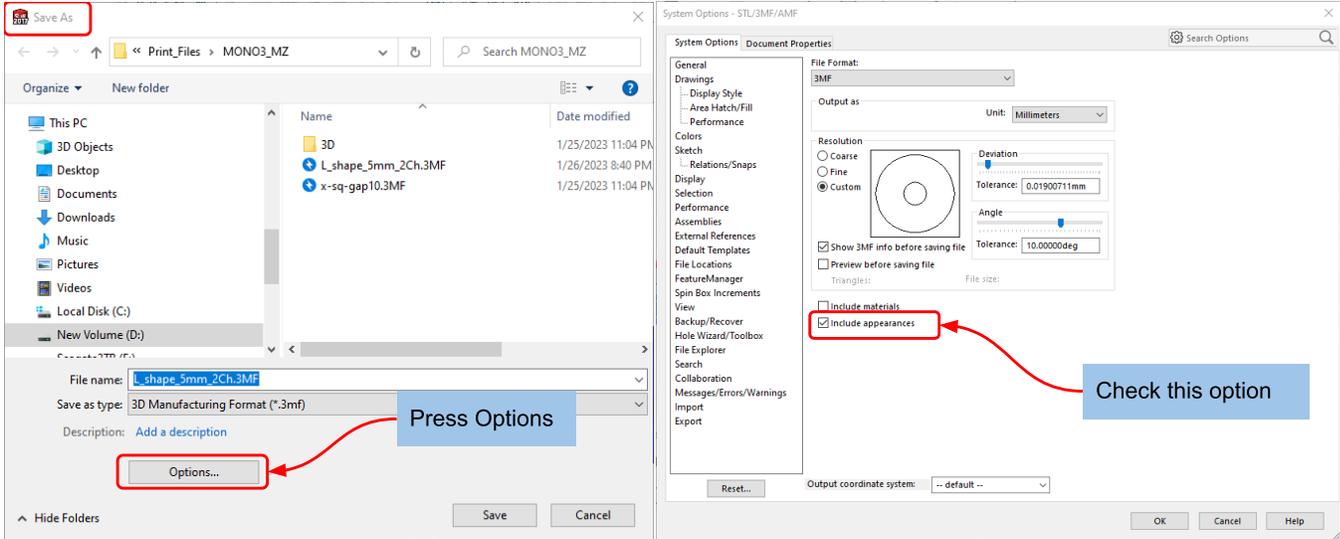
Fig. 26. Solidworks 3MF export and option window
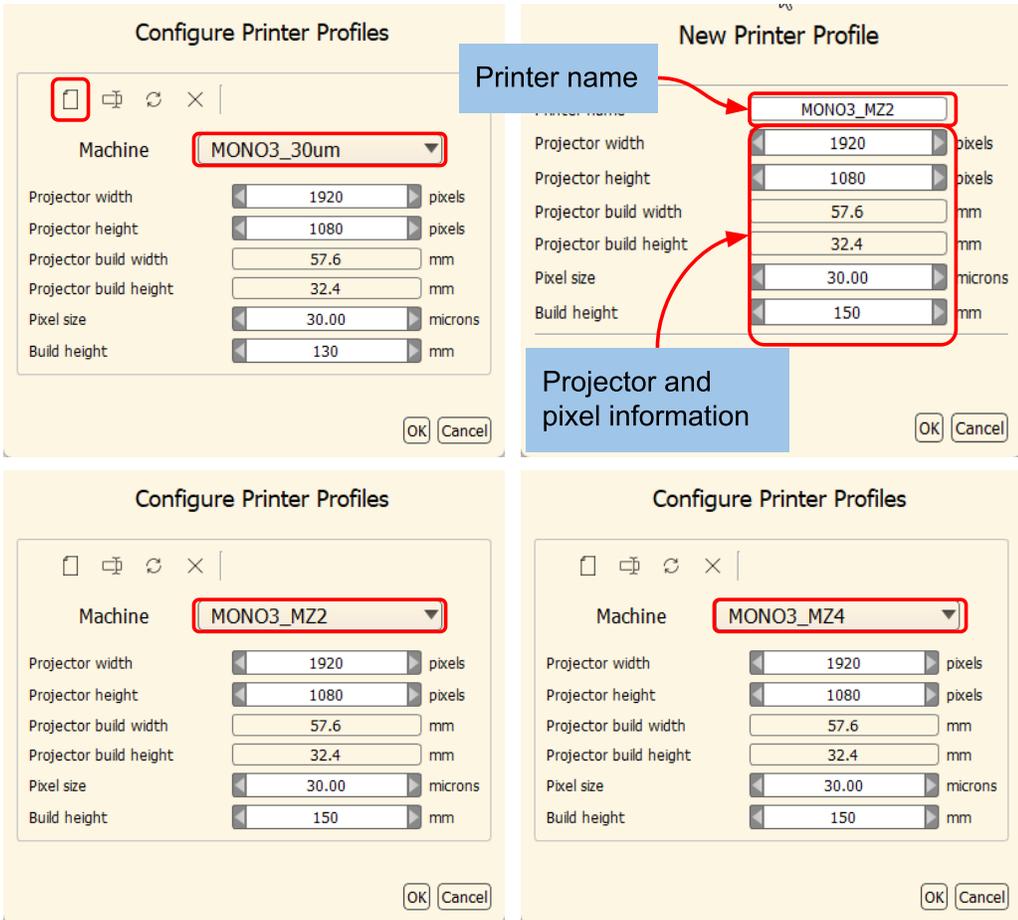
17. Add a printer profile in MonoWare

Fig. 27. New printer profile in MonoWare

> **INFO**   If your MonoWare does not have profiles for the printers, go to 'Tools' and 'Printer Profiles'.

- Press a new printer profile (***Fig. 26***) and enter the printer name and parameters as shown.

> **CAUTION** *The printer name should be **MONO3_MZ2** or **MONO3_MZ4**. Otherwise, slicing might not work properly.*

> **INFO**   You also need another printer profile such as ***MONO3_30UM or MONO3_25UM*** for a single color slicing. Use ***the same projector and pixel information*** for the single color printer. The job files created using this printer profile can be used with either 365 nm or 405 nm (or 405 nm or RGB in *MZ4*).

- Regarding the pixel size, refer to the system report. In this example, the pixel size is ***30 um***.
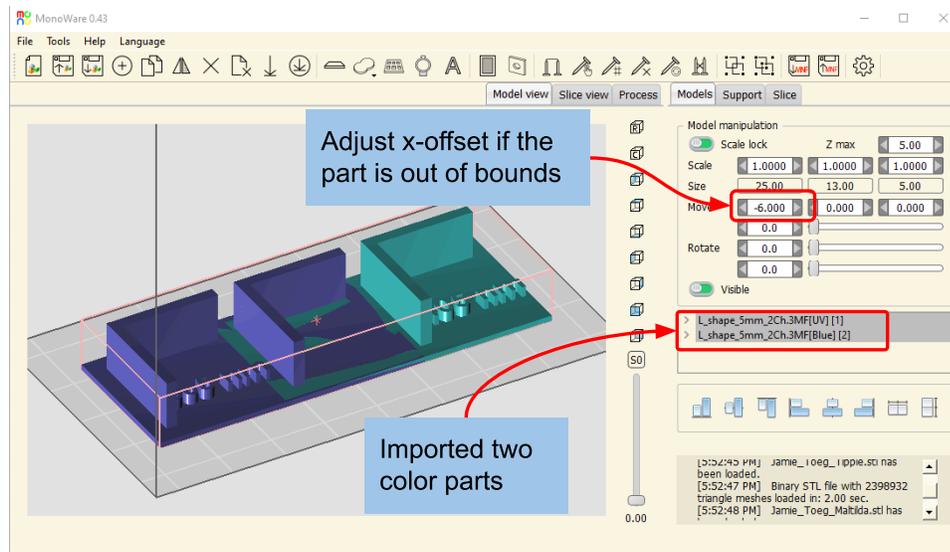
18.   Job file creation from the 3MF

Fig. 28. Import of the L-shape alignment pattern

- If the part is out of bounds, adjust x-offset to move it at center.

> **CAUTION**   *You will notice there are two parts ending with [UV] and [Blue]. <u>In the MONO3MZ2 printer, the UV is 365 nm and the Blue is 405 nm.</u>*

- The two parts are grouped together. If you want, you can ungroup them and re-assign the color as you need.
- Then press the 'MNF export' button and you can configure slicing parameters (***Fig. 29***).
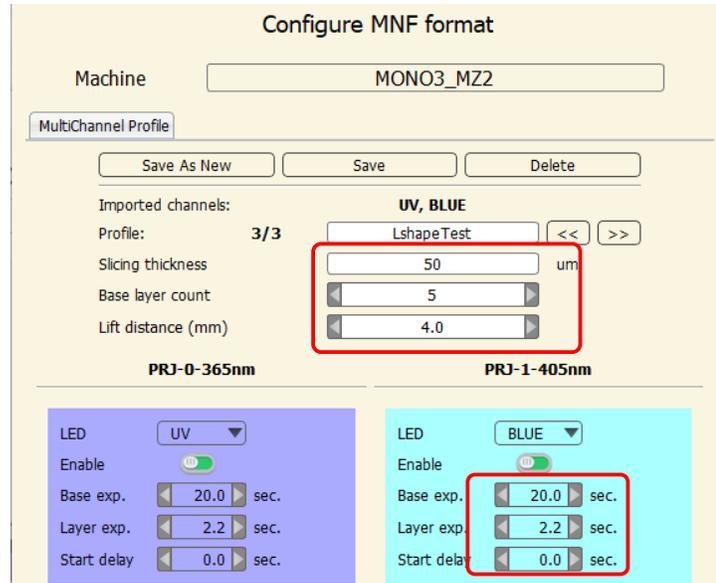
Fig. 29. Import of the L-shape alignment pattern

- Create a new profile for your resin. For example, B9C HD slate resin can be cured for 2.2 sec for 50 um slicing thickness. The light intensity values were 2 for 405 nm (Proj-1) and 15-20 for 365 nm (Proj-0).
- Once the slicing is done, transfer it to the printer using either a USB stick or via network connection.

19.   Projection test mode

INFO This mode allows one to check if all layers are correctly displayed *WITHOUT* moving the motor, which saves a time to check the validity of the series of projections.

- After moving the job file (*.mnf) to the printer, actual projections from two projectors can be tested without motor movement, which is called "Projection Test Mode".
- This mode is activated by pressing and holding the printing start button for 3+ seconds.

INFO If you want to check the projection quickly, decrease the exposure times on the *Parameters page*. The projection test mode only skips motor movement, so all exposure steps will have its preset duration.

- Place the alignment target on the build surface when you perform the projection test mode.
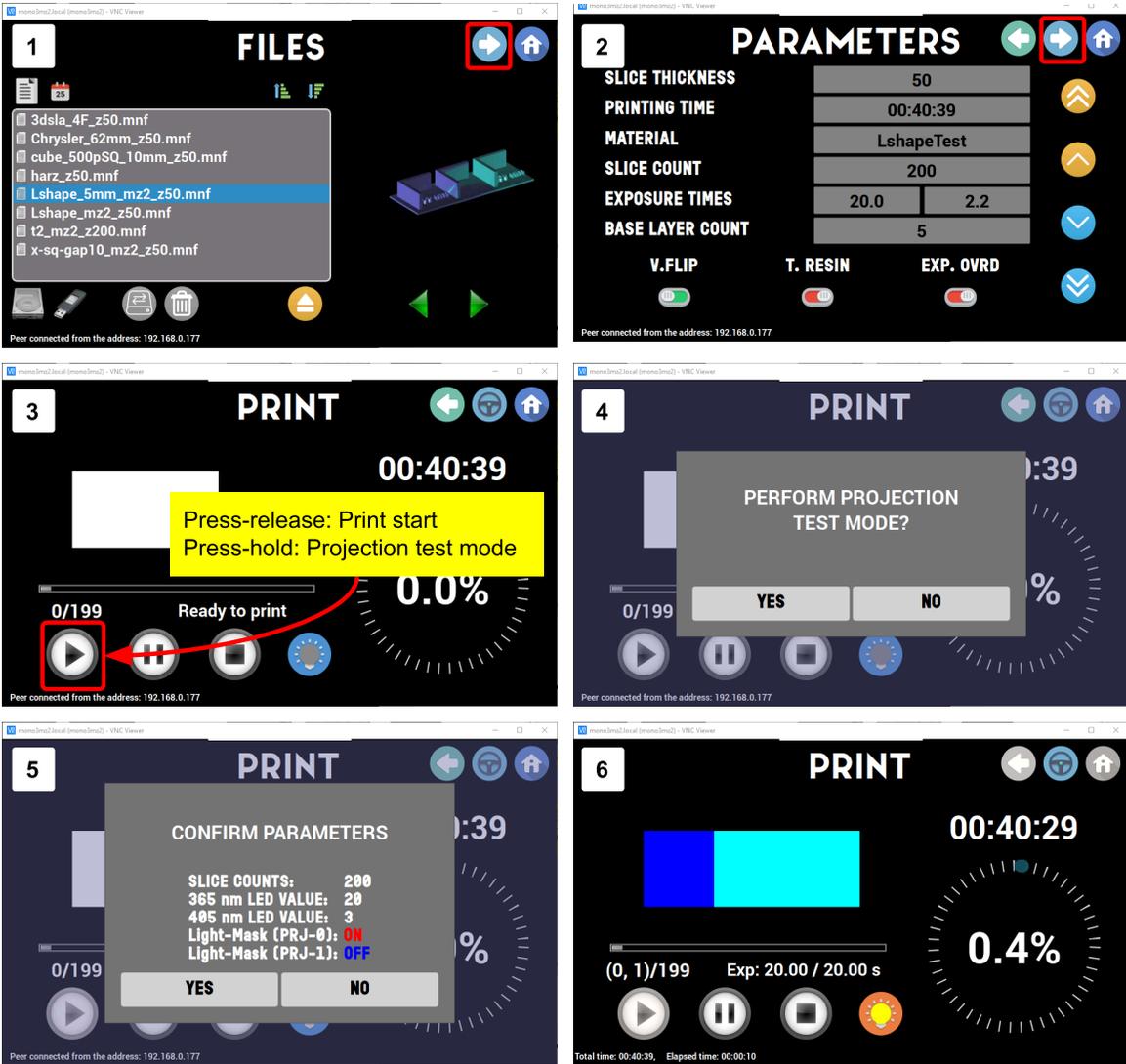
Fig. 30. Steps for the projection test mode

LIGHTMASK TOOL

20.   Lightmask generation tool

- From the firmware version of 2.4Z / 1.9S (both printer and projector FW versions should be higher than these), a lightmask generation tool is included.
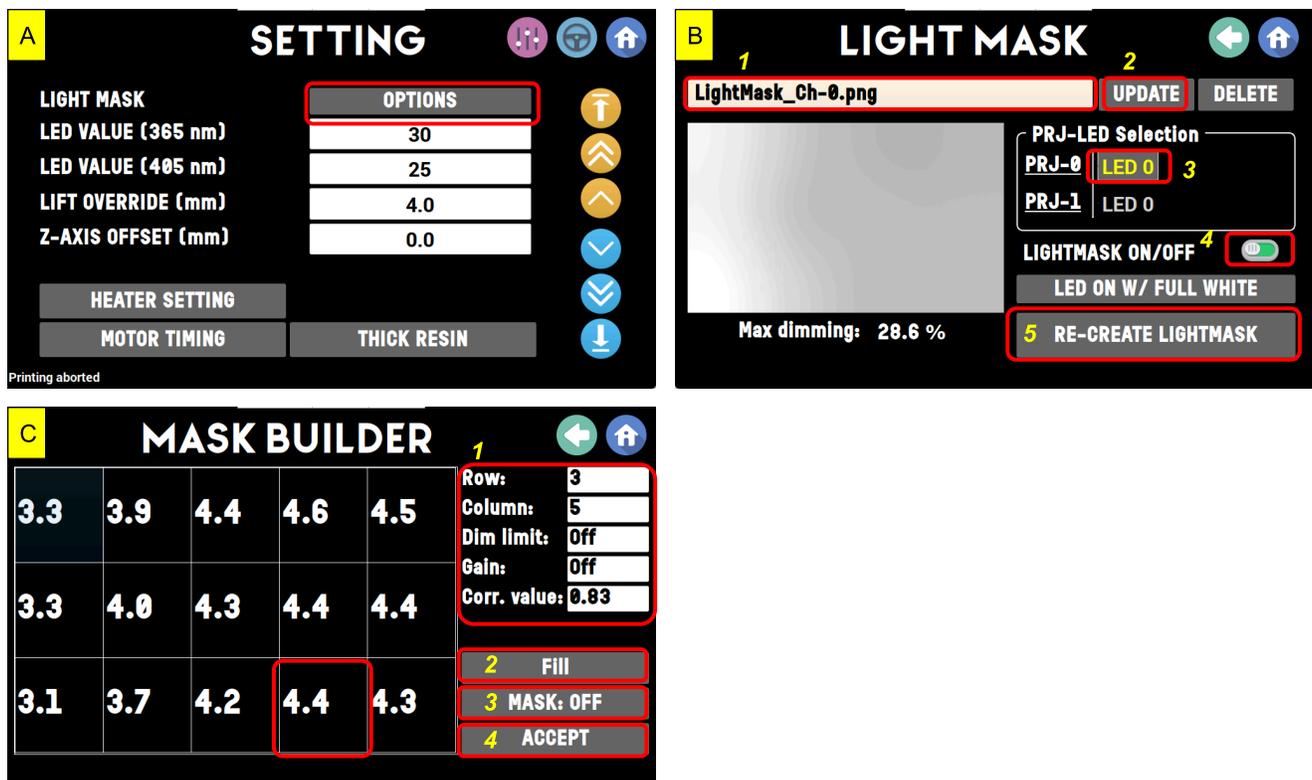
Fig. 31. Lightmask generation tool in Setting page

- Most likely, longer wavelength projectors do not need a lightmask correction. However for a shorter wavelength projector with a certain dichroic mirror, there might be intensity unevenness especially due to the dichroic mirror characteristics.
- In the lightmask page (*Fig. 31-B*), existing lightmask images are listed on top (box-1).
- After lightmask generation, you always need to send the newly generated lightmask file to a projector using an *UPDATE button* (box-2).
- You can choose which projector is used for the generation (box-3).
- You can also turn on or off the lightmask using the button (box-4). Each projector and each channel can have a different lightmask file.
- When you need to generate a new mask file, press this button (box-5).
- In *Fig. 31-C*, you can set parameters and generate a new mask file.
- You can increase or decrease a measurement grid size (box-1). The *Dim limit* indicates the maximum dimming ratio during mask generation. For example, if you set it to 15%, the darkest area will have 85% or higher intensities to limit the dimming to 15%.
- The *Gain* parameter will be multiplied to the generated mask file to increase all pixel values by this ratio. (default: 0% or off).
- The Correlation value is used when the gamma curve is not linear (default: 1.0 , but use 0.83 for ZS PDC04 projectors).
- When you press a cell in the table, the corresponding square will be lit. Then measure its intensity and input the value one by one. By repeating this and the *Accept button*, you can create a new lightmask file (box-4).
- When lighting a cell, you can use the previously updated lightmask file with the *Mask: ON* button (box-3). With the Mask: OFF, no lightmask is used.

21.   Remote support

- Install AnyDesk and RealVNC viewer on the computer that is connected to the printer via an ethernet cable.
    - RealVNC viewer: https://www.realvnc.com/en/connect/download/viewer/windows/
    - AnyDesk: https://anydesk.com/en/downloads/windows
- If you need remote support on the printer and projector servers inside, let us know the AnyDesk ID (usually 9 digit numbers). We will connect to your PC via AnyDesk and connect to the printer via RealVNC viewer.

22.   Closing remarks

- If you have any issues while using the printer and software, contact us at info@monoprinter.com

END OF DOCUMENT