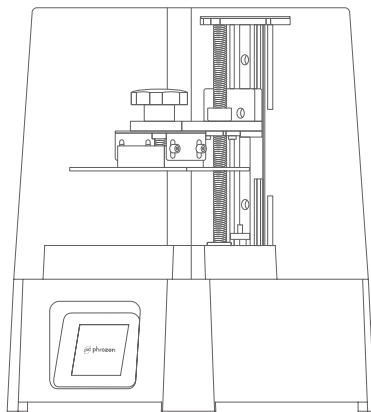




User Manual for **SONIC MINI**

Thank you for Choosing your Phrozen 3D Printer !

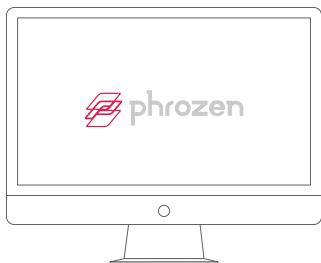
Dear Phrozen's User,

Glad you've joined us. For the best experience, please read through the Phrozen manual and follow step-by-step before you start.

Feel free to contact us if you have any questions.

Email: support@phrozen3d.com

Multi-language manuals and related software are available on our official website at phrozen3d.com/page/download



 Facebook: [@Phrozen3d](https://www.facebook.com/Phrozen3d)

 Twitter: [@Phrozen3d](https://twitter.com/Phrozen3d)

 Instagram: [@Phrozen3d](https://www.instagram.com/Phrozen3d)

 Youtube: [@Phrozen3DPrinter](https://www.youtube.com/Phrozen3DPrinter)

Chinese version starts from **Page 18** ▶▶▶

INDEX

I. Key Notes Before We Start	3
II. What You Have In The Box	4
III. Printer Parts	5
IV. Sonic Mini Technical Specs	6
V. Calibrate & Test	7
VI. Test Printing	9
VII. Post Processing	10
VIII. Prepare Your File	11
IX. FAQ	14
X. Maintenance	15
XI. Congratulations	16

Key Notes Before We Start !

- ▶ Keep printer & resin away from kids and direct sunlight exposure. Also make sure to print in a cool, dry, and ventilated environment.
- ▶ Every printer is pre-calibrated. However, we still recommend that you calibrate when you use the printer for the first time.
- ▶ Before starting every print, please clean the resin vat and refill the resin to avoid potential debris and pigment separation which may affect your printer / print.
- ▶ Fill the resin vat approximately 1/3 of the way full.
DO NOT OVERFILL.
- ▶ Please wear PPE (Personal Protective Equipment) like mask, goggles, and long sleeves when operating printers and resins.
- ▶ Please clean the model with 95% Alcohol, IPA, or special detergent like Phrozen Wash.
- ▶ Be careful when using scraper to remove the print from the build platform. It might cut your hand if it is used carelessly.
- ▶ Please DO NOT dis-assemble printer by yourself. It may cause your warranty to be expired.

What You Have In The Box

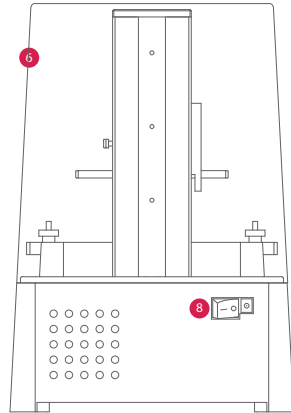
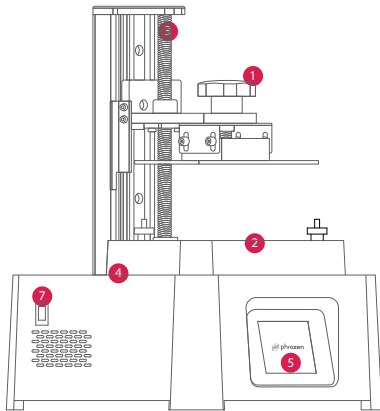


SONIC MINI

- | | | | |
|------------------|------------------|------------|------------|
| ❶ User Manual | ❷ Gloves | ❸ Scrapers | ❹ Adaptor |
| ❺ Allen Wrench | ❻ Plastic Funnel | ❼ USB | ❽ Foot Pad |
| ❾ Build Platform | ❿ Backup Screws | | |

* The included power cord set packaged with the main unit cannot be used with electrical equipment other than the specified device.

Printer Parts



1 Build Platform

2 Resin Vat

3 Z-Axis

4 LCD

5 Touch Panel

6 Plastic Case

7 USB Port

8 Power Switch

Sonic Mini Technical Specs

System: Phrozen OS
Operation: 2.8 inch Touch Panel
Slicer Software: ChiTu Box V1.6.1
Connectivity: USB

Operation

Technology: Resin 3D Printer - LCD Type
Light Source: 405nm ParaLED® 2.0
XY Resolution: 0.063 mm
Layer Thickness: 0.01 - 0.30 mm
Printing Speed: 80 mm / hr
Power Requirement: AC100-240V~50/60Hz

Printing Specification

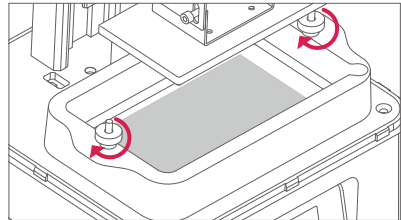
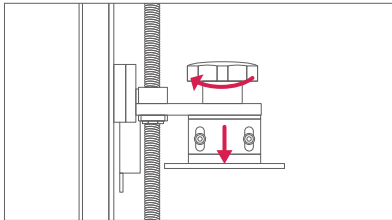
Printer Size: L9.8 x W9.8 x H1.3 in
Printing Volume: L4.7 x W2.6 x H5.1 in
Printer Weight: 5 kg

Hardware Specification

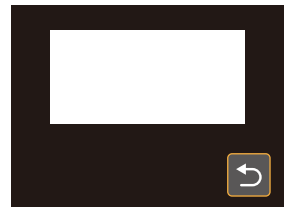
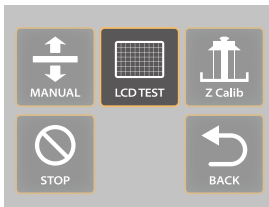
*All specifications were tested in a laboratory and are subject to change without prior notice. For the latest update, please refer to Phrozen's official website.

Calibrate & Test

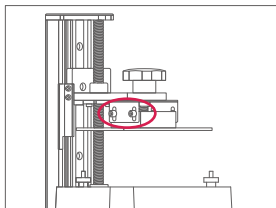
- 1 Take out the printer from the box, plug in the power cord, and turn on the power switch.
- 2 Screw the build platform and resin vat on the printer, and tighten them up.



- 3 Click **TOOLS** and then click **LCD TEST** . Then the LCD will be light up.
- 4 If the LCD displays a complete image as shown on touch panel, that means optical engine (LCD + LED) works perfectly.

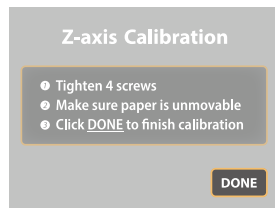
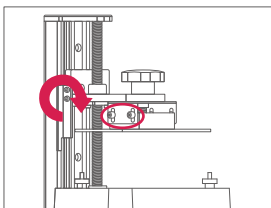
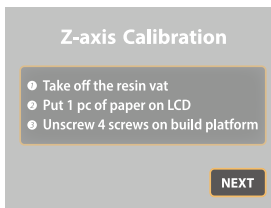
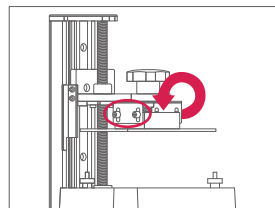
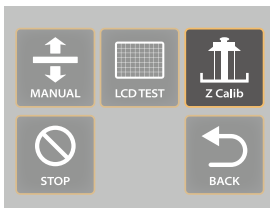
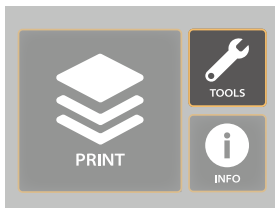


- 4 Loosen the 4 screws on the side of the build platform with an Allen wrench.



- 5 Click **TOOLS** , then click **Z Calib** to start the calibration.

After the build platform reaches the bottom of resin vat, tighten 4 screws on the side of the build platform with an Allen wrench.

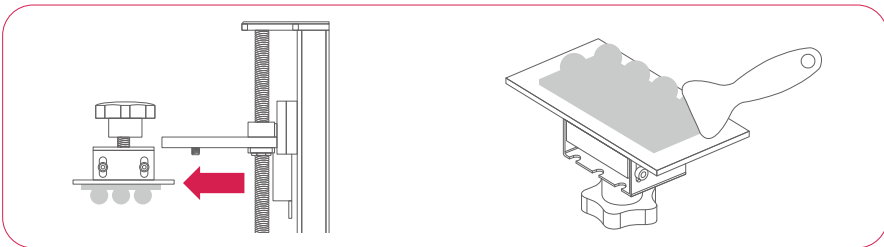


Test Printing

- 1 Wear PPE (Personal Protective Equipment) .
- 2 Shake the resin for 1 minute and pour it into the vat to fill 1/3 of the vat.
- 3 Plug USB (with sliced 3D file) into printer.
- 4 Load the sliced 3D files in USB through touch panel and click **GO**.
- 5 Once the printing process starts, close the plastic case and wait till process finishes.



- 6 Wait till there's no resin drips once the process is completed.
- 7 Use scraper CAREFULLY to remove the print.



Post Processing

- 1 Use 95% alcohol, IPA, or detergent like Phrozen Wash to clean your print. An Ultra-sonic cleaner is recommended for cleaning hollowed parts.
- 2 Post-cure your print by UV lamp. Curing time depends on the intensity and wavelength of your lamp. Prints can be cured within 15 minutes in average by Phrozen Cure .

▶ Post-Processing

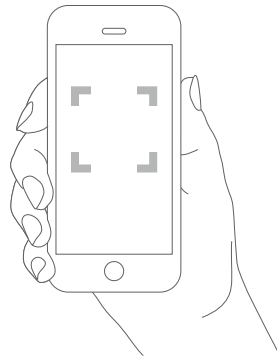


youtu.be/0gker8J-9FM

▶ Youtube channel



<https://reurl.cc/0z5G8b>



SAFETY GUIDE

- 1 Keep resin away from direct sunlight exposure.
- 2 DO NOT dispose liquid resin. Wait until resin is fully cured, then dispose as general plastic waste.
- 3 Wear PPE(Personal Protective Equipment) like goggles, gloves...etc.
- 4 Resin is not allowed to be swallowed or contacted with eyes & skins directly.
- 5 Stop using UV resin if it causes allergy.

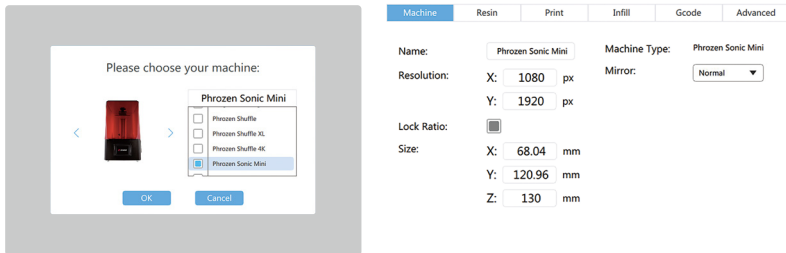
Prepare Your File

1 Install ChiTu Box

Install ChiTu Box V1.6.1 (or above version) in the USB. Run ChiTu Box after installation.

2 Find ChiTu Box Setting

Click Setting and add a new printer. Select “Phrozen Sonic Mini” as your default printer.



Setup of ChiTu Box

3 Resin Parameter

- Put Resin Density: 1.1g / ml and your resin cost for printing cost estimation.



4 Print Parameter

- **Layer Height:** Best recommended range is 0.03 - 0.100 mm. Thinner layers make parts finer but takes longer time to print.
- **Bottom Layer Count:** 3 - 6 layers. More layers for better adhesion to build platform.
- **Exposure Time:** set from 1-3 sec for LCD resins and 3-10 for DLP resins. Thicker layers requires more exposure time.
- **Bottom Exposure Time:** set from 20-40 seconds for LCD Resins and 40-80 sec for DLP resins. Thicker layers require more exposure time.
- **Other Setting:** Please use default setting.

Machine	Resin	Print	Infill	Gcode	Advanced
Layer Height:	0.05	mm	Bottom Lift Distance:	6	mm
Bottom Layer Count:	6		Lifting Distance:	5	mm
Exposure Time:	1.5	s	Bottom Lift Speed:	100	mm/min
Bottom Exposure Time:	20	s	Lifting Speed:	100	mm/min
Light-off Delay:	7	s	Retract Speed:	150	mm/min
Bottom Light-off Delay:	7	s			

5 Infill / Gcode

Please use default setting.

6 Advanced

Turning on the anti-aliasing function could make the print more smooth, but it will sometimes disrupt dimension accuracy in certain prints.

7 Load & Edit Model

- Open test 3D file (.stl) from USB or your own file.
- Menu on the left can change dimension, angle, position of the 3D file.
- Menu on the top can hollow and dig holes on the 3D file.
- You can add support on your 3D file if there are overhangs.

Other Operation

- **Long Press Left Button** : drag the 3D file to proper position.
- **Scroll Wheel** : zoom in/out of the view.
- **Long Press Right Button** : see different angles of the view.

8 Save Model

- After setting up all the parameters, click "Slice". Once it is done, click "Save"
Move the file from your laptop to the USB and load it to your 3D printer.
- Once it is done, click "Save". You will get a sliced .phz file.

FAQ

❶ **My Sonic Mini Cannot Work Functionally**

- Phrozen offer a full-one year warranty on printer and 3-month warranty on LCD for Sonic Mini.
- If your printer doesn't work, please contact us through support@phrozen3d.com
- If you buy Sonic Mini from our distributor, please contact them for claim of warranty.
- Order ID is required if you need to claim warranty.

❷ **Model Is Not Able To Stick To Build Platform**

- Re-do Z-axis calibration.
- Increase cure time in base layer.
- Roughen the build plate surface by sanding it.

❸ **Model Is Falling Down In Vat, but Support / Base Stick To Build Platform**

- Check whether curing time is in the proper range.
- Check the support setup - increasing support density & tip diameter could help.

❹ **Micro Holes are Found in Finished Print**

- Check whether cure time is in proper range.
- Check whether there are debris between resin vat and LCD.
- Check if there are dead pixels on LCD

❺ **Finish Print Crack Easily**

- Check whether the print is cleaned completely, especially for hollow parts.
- Increasing cure time could also help.

Maintenance

① How to Replace FEP & LCD

- Check our Youtube Channel for more details.

② How to Maintain Z-axis

- General lubricant could be applied on the Z-axis screw to make it move fluently.

③ Clean the Vat with Proper Tool

- To protect release film, use plastic spreader to clean the vat instead of sharp scraper.

④ Remove Build Platform with Care

- The Build Platform will damage the LCD screen if it bumps against it.

⑤ Storage of Resins

- Filter the resin and make sure there are no residues. Keep the resin in opaque & sealed bottles without sunlight exposure.

⑥ Cleaning the Printer

- Clean the printer, build platform, and resin vat with alcohol and tissues directly.

Congratulations !

You have finished your first run of the printing. Hope you have a great experience with Phrozen Sonic Mini.

Now it's the beginning of your 3D printing journey. Here are 3 tips for you.

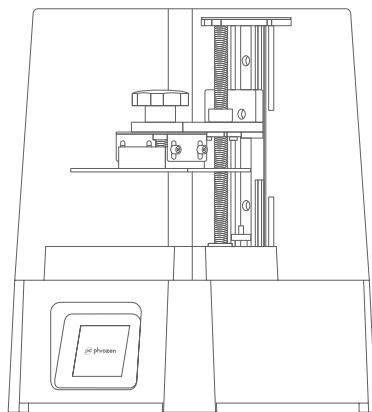
- 1 Follow Phrozen Facebook Page for latest news & updates.
- 2 Join **Phrozen 3D Printer Group** to discuss with other users.
- 3 When you have questions, feel free to contact us by emailing support@phrozen3d.com or send private message to Phrozen Facebook Page. (facebook.com/messages/t/Phrozen3DP)



 Send private message to Phrozen Facebook Page.



-  Facebook: [@Phrozen3d](https://facebook.com/Phrozen3d)
-  Twitter: [@Phrozen3d](https://twitter.com/Phrozen3d)
-  Instagram: [@Phrozen3d](https://instagram.com/Phrozen3d)
-  Youtube: [@Phrozen3DPrinter](https://youtube.com/Phrozen3DPrinter)



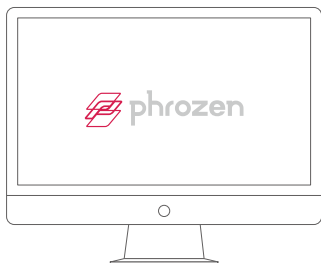
使用説明 **SONIC MINI**

感謝您的支持與選購!

親愛的使用者您好，
非常開心您的加入，為了有良好的使用品質，請您務必詳閱產品說明書並參照每一個步驟，謝謝。

如果您對於操作有任何疑問，歡迎聯繫我們團隊信箱 | support@phrozen3d.com

可至官網的支援專區下載(不同語言版本及軟體說明書)
網址 | phrozen3d.com/page/download



- Facebook: [@Phrozen3d](https://www.facebook.com/Phrozen3d)
- Twitter: [@Phrozen3d](https://twitter.com/Phrozen3d)
- Instagram: [@Phrozen3d](https://www.instagram.com/Phrozen3d)
- Youtube: [@Phrozen3DPrinter](https://www.youtube.com/Phrozen3DPrinter)

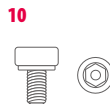
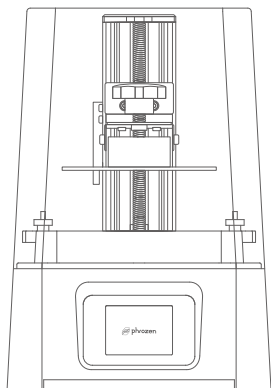
索引

I. 操作前的注意事項	20
II. 配件盒內容物	21
III. 列印機零件	22
IV. 技術規格	23
V. 校正與測試	24
VI. 測試列印	26
VII. 列印後處理	27
VIII. 檔案規格/軟體操作	28
IX. 問與答	31
X. 保養技巧	32
XI. 恭喜完成初步流程操作與認知	33

操作前的注意事項！

- ▶ 將列印機和樹脂保持在室內涼爽、乾燥和通風之處，避免陽光直射與兒童接觸。
- ▶ 每台列印機在原廠均已預先校正。不過，我們建議您在首次使用時再次進行校正。
- ▶ 每次列印之前，請清潔樹脂槽內可能潛在的碎屑和顏料並重新填充樹脂於槽內，進而保持列印機和列印成品品質。
- ▶ 建議將樹脂填充至1/3的樹脂槽高度即可，避免列印時樹脂溢出。
- ▶ 操作列印機和樹脂時，請佩戴口罩、護目鏡和長袖外套等個人防護設備。
- ▶ 請使用95%酒精，IPA或Phrozen Wash之類的特殊清潔劑清潔模型。
- ▶ 使用刮板從底板上取下列印件時要小心。如果操作不當，可能會割傷您的手。
- ▶ 請不要自行拆卸列印機。可能會導致保固失效。

配件盒内容物



SONIC MINI

❶ 操作手冊

❷ 六角板手

❸ 列印載台

❹ 手套

❺ 塑膠漏斗

❻ 螺絲

❼ 軟硬刮刀

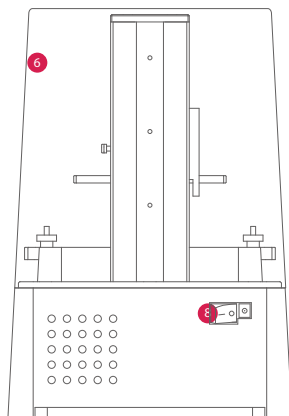
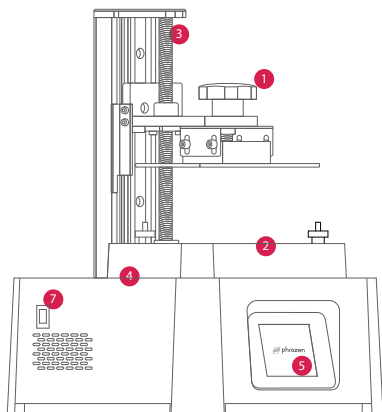
❽ USB

❾ 變壓器

❿ 機殼腳墊

* 機台附帶的電源線組只能與指定的電器設備一同使用，不得與其他電器設備搭配使用。

列印機零件



1 列印載台

2 樹脂槽

3 Z軸

4 LCD面板

5 觸控螢幕

6 壓克力遮光罩

7 USB孔

8 電源開關

技術規格

機台系統: Phrozen OS
操作介面: 2.8 英寸觸控螢幕
切層軟體: 赤兔 V1.6.1或以上
上傳方式: USB

操作系統

技術: LCD 光固化
光源: 405nm ParaLED® 2.0
XY 解析度: 0.063 mm
建議層厚: 0.01 - 0.30 mm
列印速度: 80 mm / hr
電源需求: AC100-240V~50/60Hz

技術規格

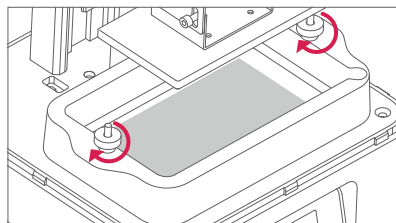
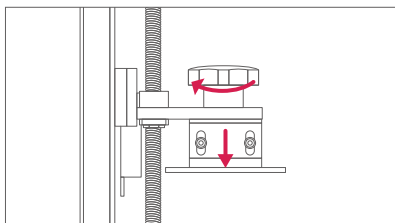
尺寸: (長)25 x (寬)25 x (高)33 cm
體積: (長)12 x (寬)6.8 x (高)13cm
重量: 5 kg

硬體規格

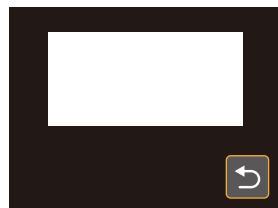
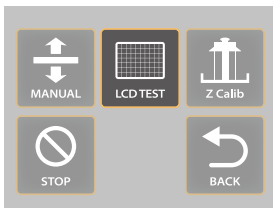
*以上為實驗測試數據，若有內容更改請以官網為主。

校正與測試

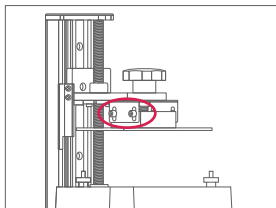
- ❶ 取出列印機，插入電源線，然後打開電源。
- ❷ 將列印載台和樹脂槽固定到列印機上。



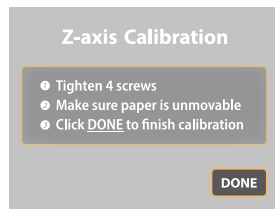
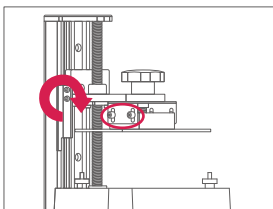
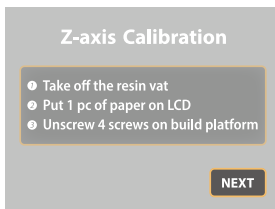
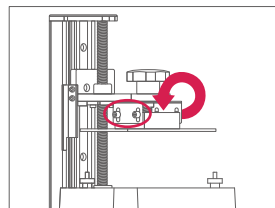
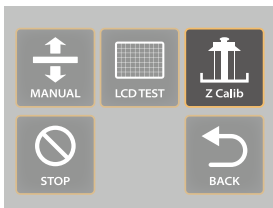
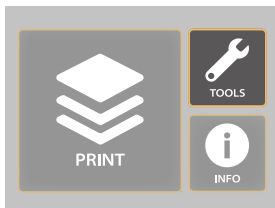
- ❸ 觸控 **TOOLS**，然後觸控 **LCD TEST**，接著LCD將點亮。
- ❹ 如果 LCD 顯示如同觸控螢幕上之完整圖像，則表示光學引擎 (LCD + LED) 運作正常。



- 4 用六角扳手鬆開列印載台側面的4個螺絲。

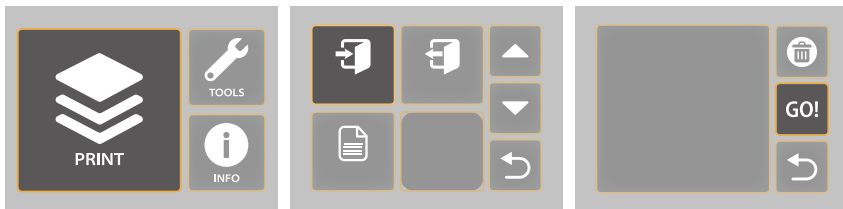


- 5 觸控 **TOOLS**，然後觸控 **Z Calib** 開始校正列印載台。
當載台與底部接觸後，鎖緊載台側面的4個螺絲。

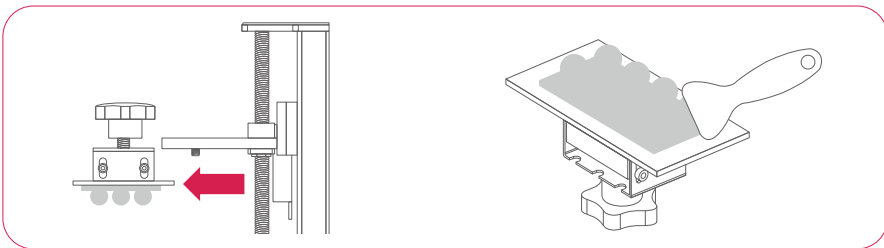


測試列印

- 1 穿戴個人防護裝備。
- 2 充分搖均勻樹脂1分鐘，然後將其倒入樹脂槽內1/3的高度即可。
- 3 將USB（已存取之切片檔案）插入列印機。
- 4 切片檔案傳輸顯示在觸控螢幕中，然後觸控 **GO**。
- 5 一旦開始列印過程，請蓋上紅色遮光罩並等待列印完成。



- 6 等到列印完成後，列印成品是緊密吸附在載台表面。
- 7 請小心使用刮刀把列印成品從載台上移除。



列印後處理

- 1 使用95%的酒精、IPA或Phrozen Wash之類的清潔劑清潔模型。建議使用Phrozen超聲波清潔器可清潔更細微部位。
- 2 用紫外線燈對模型進行後固化。固化時間取決於燈的強度和波長。Phrozen Cure平均可以在15分鐘內固化完成。

▶ 列印後處理

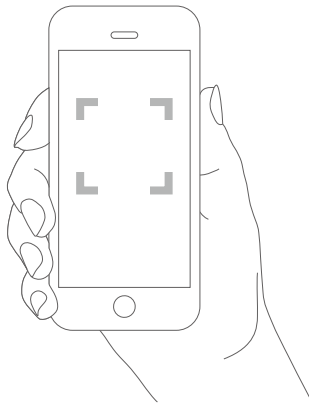


youtu.be/0gker8J-9FM

▶ Youtube 頻道



<https://reurl.cc/0z5G8b>



安全指導

- 1 樹脂應避免陽光直射。
- 2 如果會引起過敏，請立即停止使用樹脂。
- 3 操作時應佩戴護目鏡和手套等個人防護設備。
- 4 禁止吞嚥樹脂或使樹脂直接與眼睛和皮膚接觸。
- 5 不要任意傾倒樹脂。將樹脂固化後，依一般事業廢棄物處理即可。

檔案規格 / 軟體操作

1 安裝赤兔軟體

在USB中存取ChiTu Box V1.6.1（或以上版本），並開始使用。

2 赤兔軟體設定

點選設定並選取列印機種。

選擇“Phrozen Sonic Mini”作為接下來之操作的樣板。



3 樹脂參數設定

- 將樹脂密度設定為1.1g / ml，可以此估算印刷成本。



4 列印參數

- **層厚:** 最佳建議範圍是0.03-0.100毫米。
較薄的層厚使列印成品更細緻，但列印時間相對更長。
- **底層數:** 建議3-6層。增加底層數進而更好地附著在列印載台上。
- **曝光時間:** LCD樹脂設置一般為1-3秒，DLP樹脂設置一般為3-10秒。
較厚的層需要更多的曝光時間。
- **底層曝光時間:** LCD樹脂設置為20-40秒，DLP樹脂設置為40-80秒。
較厚的層需要更多的曝光時間。
- **其他設定:** 請使用預設值設定。

機器	樹脂	列印	填充	Gcode	進階
層高:	0.05	mm	底層抬升距離:	6	mm
底層數:	6		抬升距離:	5	mm
曝光時間:	1.5	s	底層抬升速度:	100	mm/min
底層曝光時間:	20	s	抬升速度:	100	mm/min
減燈延時:	7	s	回程速度:	150	mm/min
底層減燈延時:	7	s			

5 填充 / Gcode

請使用預設值設定。

6 進階

抗鋸齒功能讓邊緣較粗糙表面使之變得平滑，但是在某種程度上會影響其精細程度。

7 加載 / 編輯模型

- 從USB或您自己的文件中打開測試.stl 3D檔。
- 左側欄位可以變更尺寸、角度以及位置。
- 上方欄位可以做薄殼和開孔設定。
- 如果模型與列印成型載台之間懸空可以添加支撐。

其他操作

- 長按左鍵：將模型拖曳到需要的位置。
- 滑動滾輪：放大/縮小視圖。
- 長按右鍵：觀看不同的視圖角度。

8 儲存模型

- 設置完所有參數後，點選“切片”，下一步點選“保存”，將.stl 3D檔從電腦移至USB並將其加載到列印機。
- 完成後，點選“保存”。您將獲得切片的.phz檔文件。

問與答

❶ 我的 Sonic Mini 無法正常使用

- Phrozen提供一年的列印機保固，並提供3個月的LCD面板保固。
- 使用上遇到任何疑問，歡迎寄電子郵件至 support@phrozen3d.com
- 若您向官方經銷商購買Sonic Mini，請聯繫他們提供後續的保固服務。
- 保固期內送修時，請提供訂單編號即可享有保固服務。

❷ 模型無法附著在列印載台上

- 再次做Z軸校正。
- 增加底層的固化時間。
- 在列印載台表面用磨砂紙使之粗糙化。

❸ 模型落在槽體，但支撐/模型底層會緊密附著在列印載台上

- 檢查固化時間是否在適當的範圍內。
- 檢查支撐設定-增加支撐密度和尖端直徑。

❹ 列印成品缺少某些部分

- 檢查固化時間是否在適當的範圍內。
- 檢查樹脂槽和LCD面板之間是否有雜物。
- 檢查LCD面板上是否有損壞點。

❺ 列印成品放久了會有裂紋

- 檢查列印物件是否完全清潔乾淨，特別是中空部位。
- 增加固化的時間是有幫助的。

保養技巧

❶ 如何更換離型膜與LCD面板

- 可參閱我們Youtube頻道，有詳細影片教學。

❷ 如何保養Z軸

- 可以在Z軸螺絲上塗抹普通潤滑劑使其順暢地運行。

❸ 使用適當的工具清潔槽體

- 為了避免離型膜之破壞，請使用塑料刮刀清潔樹脂槽體。

❹ 小心取下列印載台

- 避免列印載台直接碰觸LCD面板造成之破壞。

❺ 妥善保存樹脂

- 過濾樹脂並確保沒有殘留物並將樹脂保存在不透明且密封的瓶子中，避免陽光直射。

❻ 清潔列印機

- 直接用餐巾紙沾附酒精清潔列印機、樹脂槽和列印載台。

恭喜完成初步操作與認識光固化3D列印！

您已經完成了第一次3D列印。感謝您的支持並希望您使用愉快。
現在，您的3D列印旅程將開始，3個貼心小提醒：

- 1 密切關注 Phrozen Facebook 以獲取最新消息。
- 2 歡迎加入 **Phrozen 光固化3D 列印機** 社團，與其他用戶討論並分享心得。
- 3 如有任何疑問，請隨時發送電子郵件至 support@phrozen3d.com與我們聯繫或將私人訊息發送至Phrozen臉書私訊小編。
facebook.com/messages/t/Phrozen3DP



f 臉書私訊小編



- f Facebook: [@Phrozen3d](https://www.facebook.com/Phrozen3d)
- t Twitter: [@Phrozen3d](https://twitter.com/Phrozen3d)
- @ Instagram: [@Phrozen3d](https://www.instagram.com/Phrozen3d)
- ▶ Youtube: [@Phrozen3DPrinter](https://www.youtube.com/Phrozen3DPrinter)



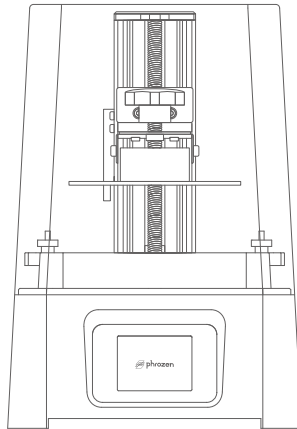
Email Support



Message Support



Discussion Group



Phrozen3D.com