Tera Harz Cure

User Manual
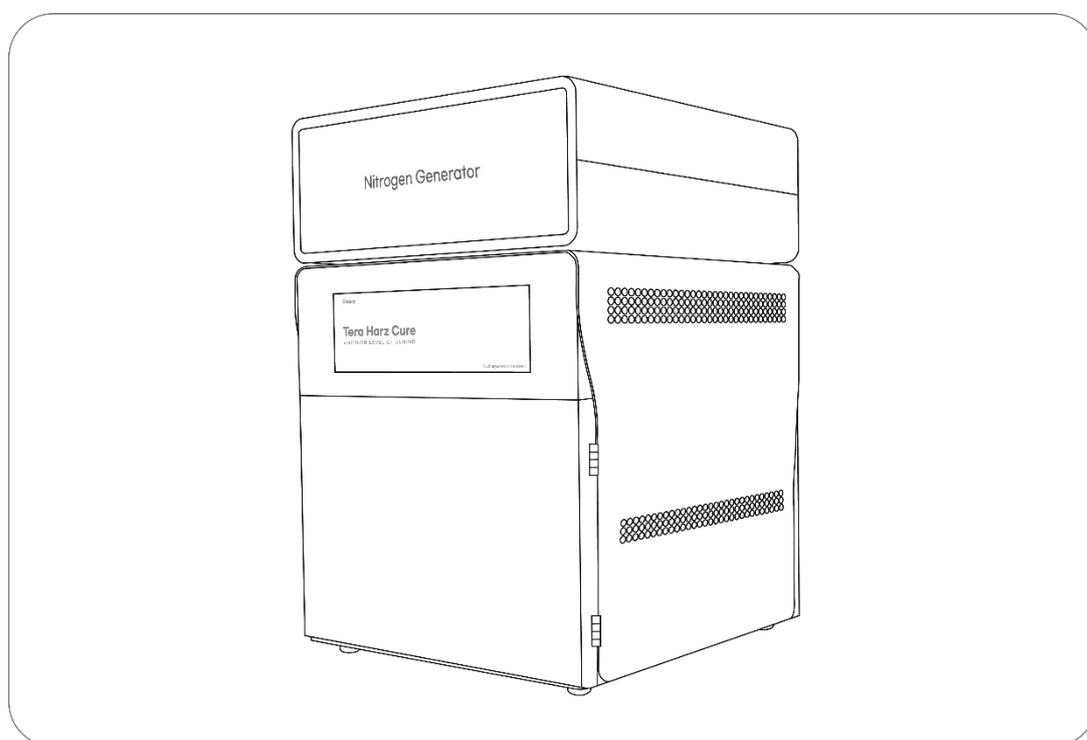
Graphy

Contents

0. General Information

□ Greetings

Thank you for purchasing Graphy's Tera Harz Cure device. This device is to make the output printed using a 3D printer into a fully cured state. Improper use or handling can cause hazards and damage. Therefore, please read the user manual carefully and follow it. Always keep the instruction manual within easy reach, and follow the safety instructions to prevent personal injury and property damage.

□ Sign

⚠ **Danger**
Hazards resulting in serious injury or death to the user

⚠ **Warning**
Hazards resulting in minor injury to the user

⚠ **Caution**
Conditions that may cause damage to the product or surroundings

1. Product Information

Tera Harz Cure is a product made to completely cure the output printed from a 3D printer using UV LED. It is designed to minimize the variation of light quantity over a wide area by optimizing the arrangement of UV LED irradiated on the curing surface, and it can be effectively cured with high light quantity. Nitrogen Generator, which can be used exclusively for Tera Harz Cure products, converts the compressed air from the air compressor into 95% or more nitrogen and supplies it to the equipment. to cover the print with nitrogen to block oxygen on the surface, increase the illuminance and physical properties of the print with high light intensity, and reduce water absorption.

2. Parts Name

(Without Nitrogen Generator)

LCD —————— ⬤

Air Vent

Case Cover

Door —————— ⬤

Front View

USB Port ————

Power Inlet ————
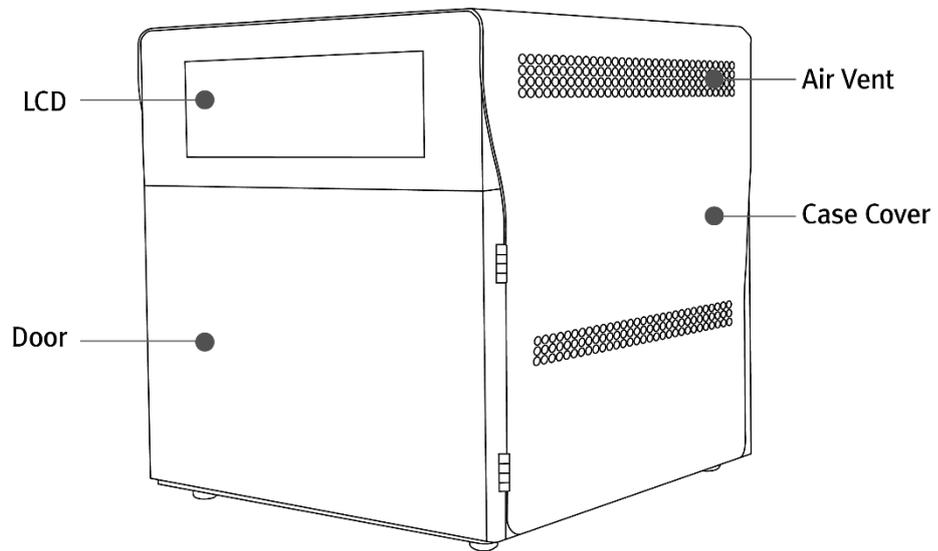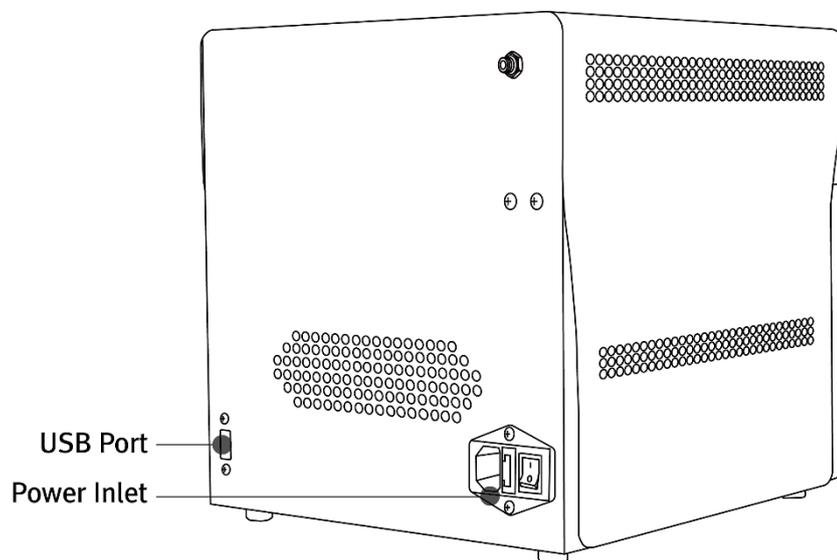
Rear View

(With Nitrogen Generator)

Nitrogen Generator

LCD

Air Vent

Case Cover

Door

Front View

Air Filter

Fix Bracket

Hose Module

P31FA
Parker

USB Port

Power Inlet
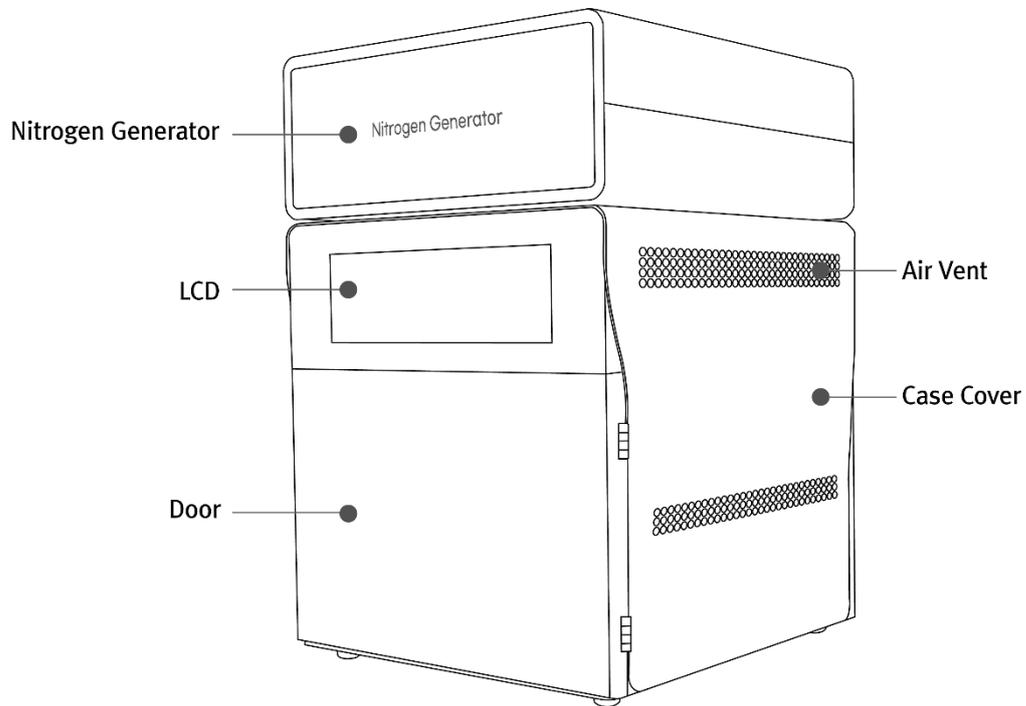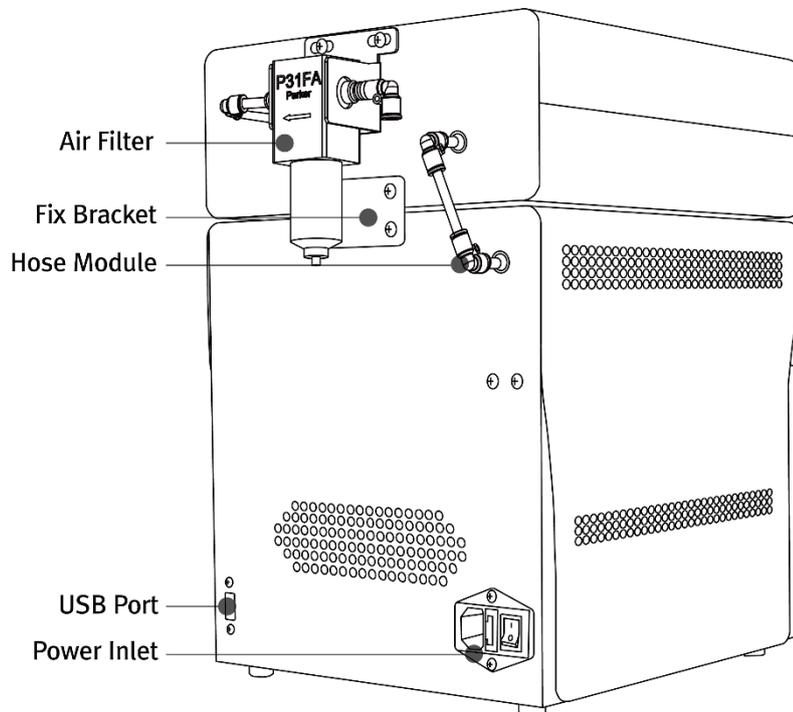
Rear View

3. Basic Specification

☐ Tera Harz Cure

Properties	Description
Input Voltage	100-240VAC, 50/60Hz
Output Voltage	24V, 12.5A
Screen	7.9″ TFT Touch LCD
Light Source	UV LED
LED Wavelength	405nm
LED power	200W
LED Energy Density(Max) (*)	280,000mJ/㎠
Irradiance of UV Light(Max) (*)	1,000mW/㎠
LED Warranty Time	1,000h
Operation Temperature	5-35°C
Curing Space	MAX. Ø180 x 65mm
Curing Time (Setting range)	1-60 min / 5-55 sec
Dimension	275 x 310 x 300mm
Weight	Unit : 8.7Kg, Box : 1.3Kg

(*)The LED energy density is the accumulated measurement result for 5 minutes using the standard UV Meter of Graphy..

☐ Nitrogen Generator (when added)

Properties	Description
Nitrogen purity at the outlet (maximum)	95% or more
Nitrogen flow rate at the outlet	3.5~4L/min
Dimension	275 x 310 x 310mm
Weight	Unit : 3.2Kg, Box : 0.3Kg
Power Source	Not needed
Air hose diameter	Ø6
Min. air pressure required at compressor	7Kgf/㎠ ≒ 7 bar ≒ 0.7Mpa or more
Min. air flowrate required at compressor	100L/Min or more
Min. air tank size required	10L or more

4. Installation

☐ Component List (* mark : 2ea)

Nitrogen Generator

Rotating Plate(Tray)*

Power Cable

Air Filter

Hose Module

Front View

Rear View

Fix Bracket

Filter Element

Tera Harz Cure with Nitrogen Generator

Bolts

< Components of Tera Harz Cure with Nitrogen Generator >

Rotating Plate(Tray)*

Tera Harz Cure

Power Cable
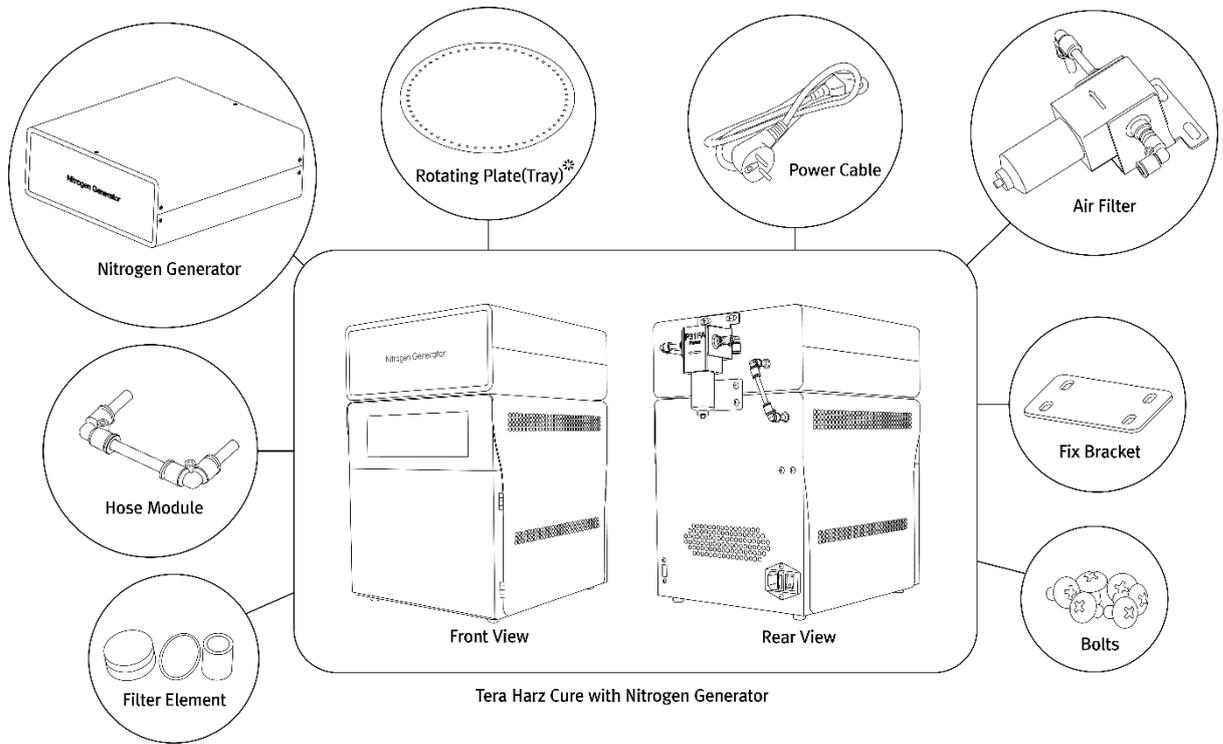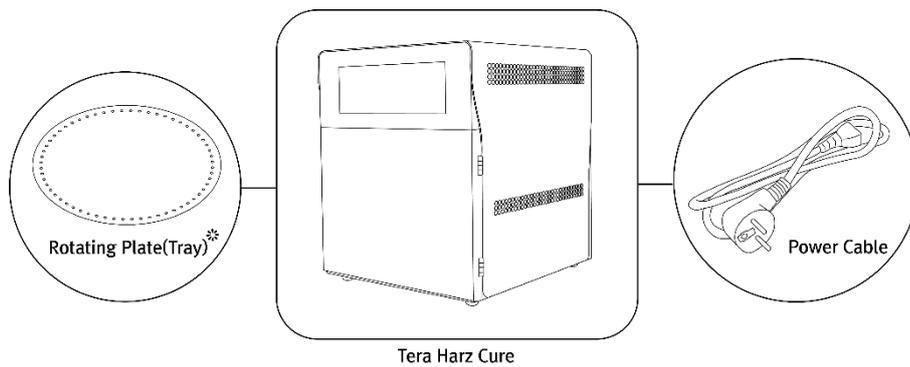
< Components of Tera Harz Cure without Nitrogen Generator >

□ Unpacking and Installing components

Carton Box

Carton box dimension (41x37x60cm)	Inside the carton box
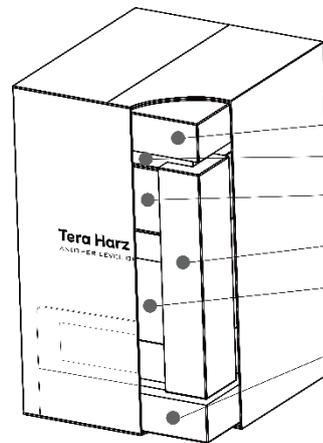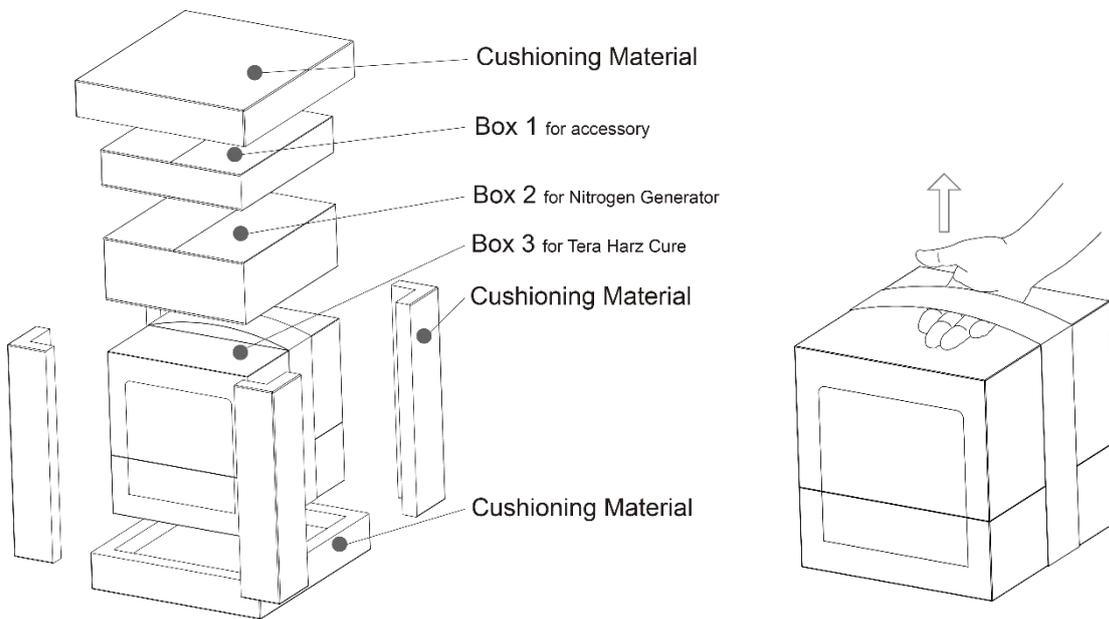
(*) There is a shape that can be used as a handle on the Tera Harz Cure box. When lifting the Tera Harz Cure from the outer box, insert your hand through the gap in the shape and take it out of the box so that you can easily take the product out.

☐ Product Installation

1) Avoid installing the product in an environment that may affect the operation of the product, such as humidity, high heat, dust, wet places, and uneven floors.
2) Keep the product 10 cm away from the wall for effective cooling of the internal temperature. (Side and rear)
3) Connect the power cable that meets the local standard to the rear of the product..
4) After turning on the power switch shown in the figure, the installation is complete when the LCD screen comes on after about 20 seconds of booting time.
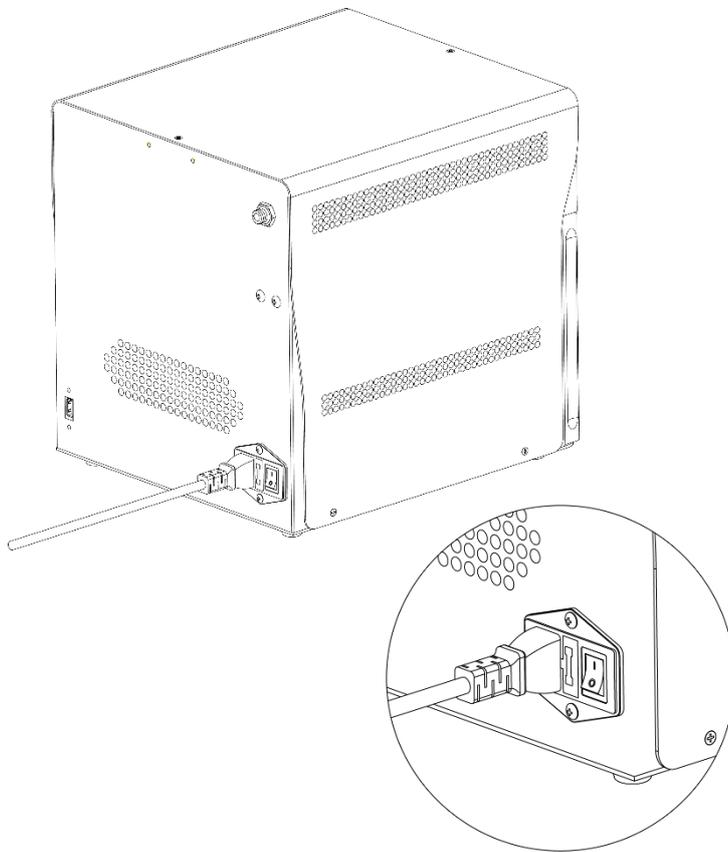
□ Nitrogen generator installation (when added)
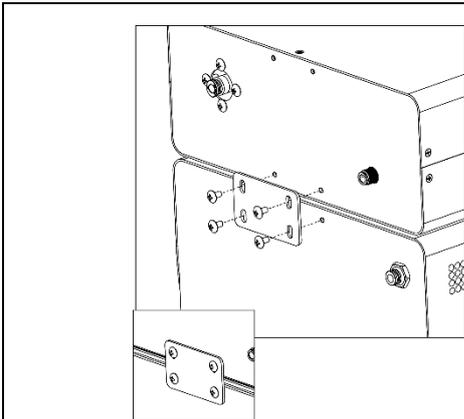
Place the Nitrogen Generator on top of the Tera Harz Cure and attach the Fix Bracket..	Attach the Hose Module as shown in the picture. Push it all the way in to prevent air leakage.
Connect the air line after assembling the air filter module with the included bolts as shown in the picture.	Connect the compressed air hose coming from outside as shown in the picture. (Ø6)
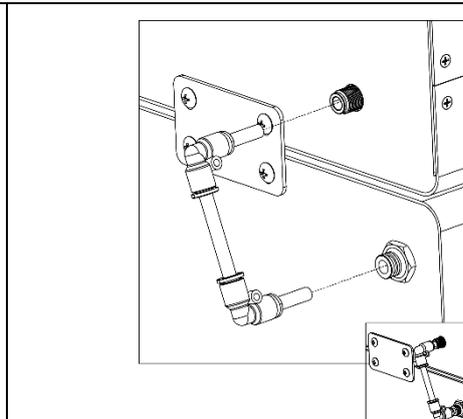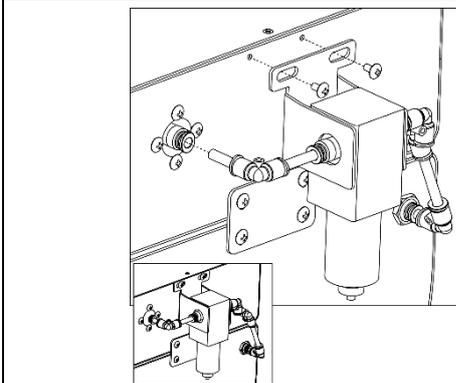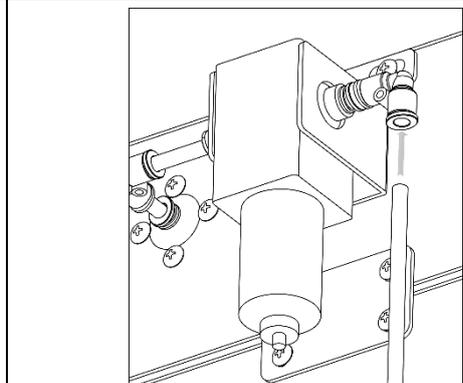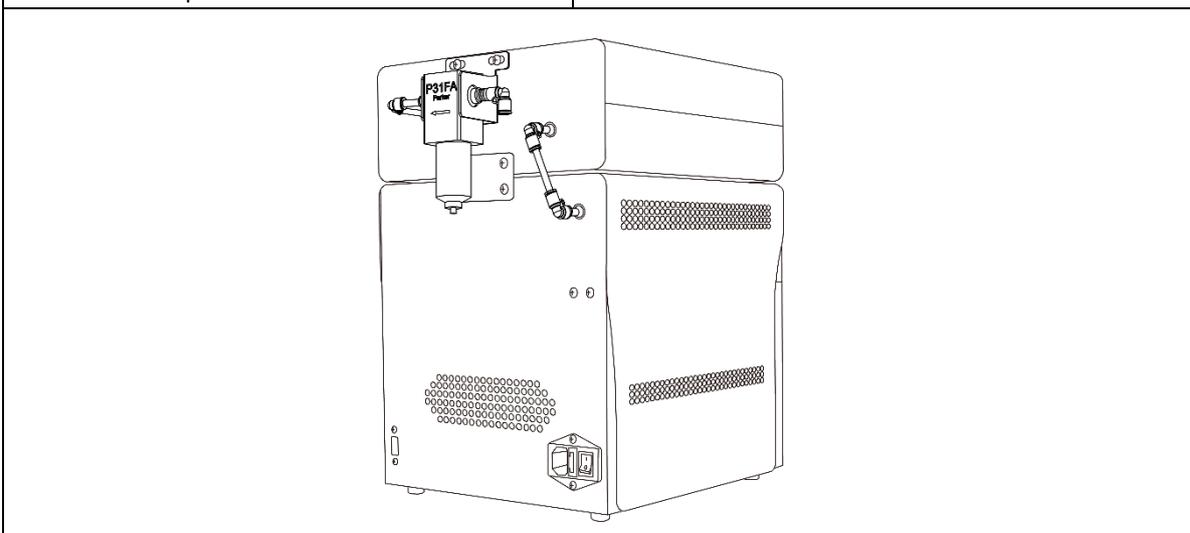
Nitrogen generator installation completed

⚠ **Caution**
In order to satisfy the nitrogen conditions generated by the Nitrogen Generator, the air compressor must satisfy the following conditions. Pressure : 7kgf/cm^2(0.7Mpa) or more, Recommended : 8kgf/cm^2 or more Flow rate : 100L/min or more If the air flowing into the nitrogen generator does not receive sufficient pressure, it will not proceed when selecting Nitrogen curing.

⚠ **Caution**
In an environment where air lines are branched instead of using an air compressor alone, sufficient nitrogen may not be injected during nitrogen hardening due to excessive use of air from other devices. If there is excessive moisture in the compressed air flowing into the nitrogen generator, the nitrogen generator may be clogged and the nitrogen purity may decrease. To prevent moisture from accumulating in the air filter, put a tissue on the drain part and press the drain part to remove moisture. If possible, use of an air dryer is recommended..

5. User Interface

☐ Boot Screen

   After connecting the power cable to the back of the equipment and turning on the switch, wait until the booting is finished as it takes about 20 seconds to boot. After booting, the screen below will appear as a video..

(a)   (b)   (c)
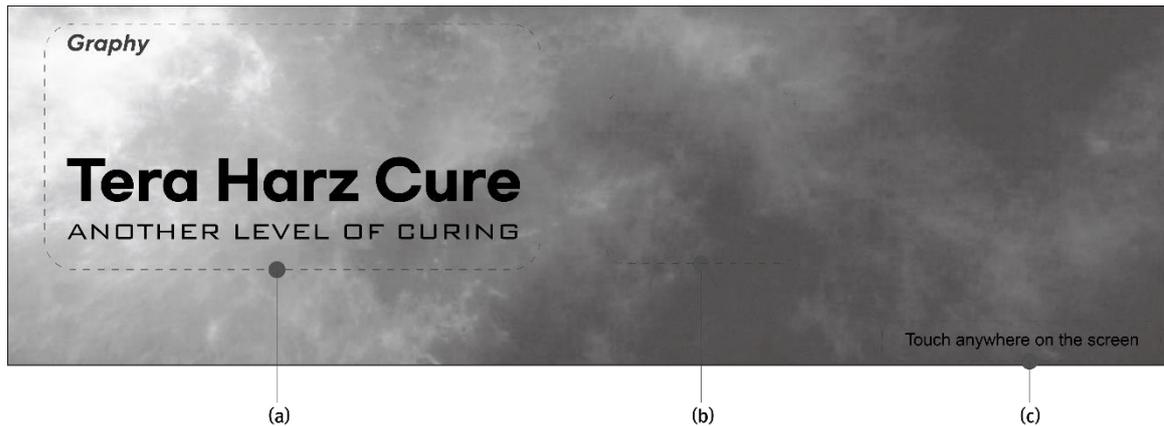
(a) : Company and product name(Text)

(b) : Intro video

(c) : Instructions to touch anywhere on the screen

☐ Main screen: setting and starting curing conditions
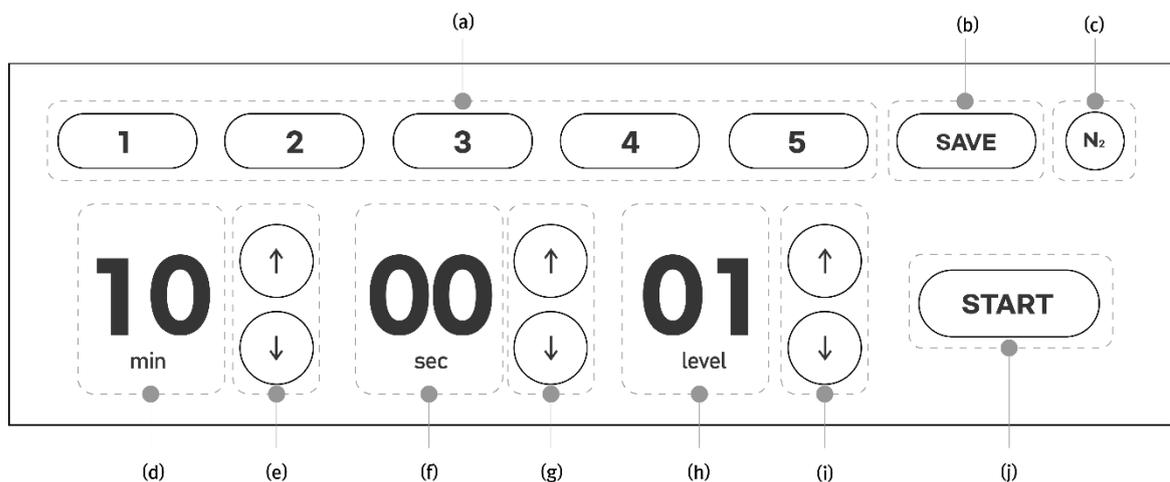
(a) : 5 pre-stored modes. After newly saving the settings for each mode, you can apply the changed settings.

(b) : A function to save the curing conditions (minutes/seconds/levels/nitrogen hardening) that are frequently used by users in a desired mode

(c) : Function to select Nitrogen curing or not

(d) : Curing time is displayed in minutes.

(e) : Curing time in (d) can be adjusted in units of 1 minute by pressing the arrow icons.

(f) : Curing time is displayed in seconds.

(g) : Curing time in (f) can be adjusted in units of 5 second by pressing the arrow icons.

(h) : Curing level is displayed (1~5)

(i) : Curing level in (h) can be selected by pressing the arrow icons.

(j) : Start curing.

☐ Progress screen : Status screen at curing
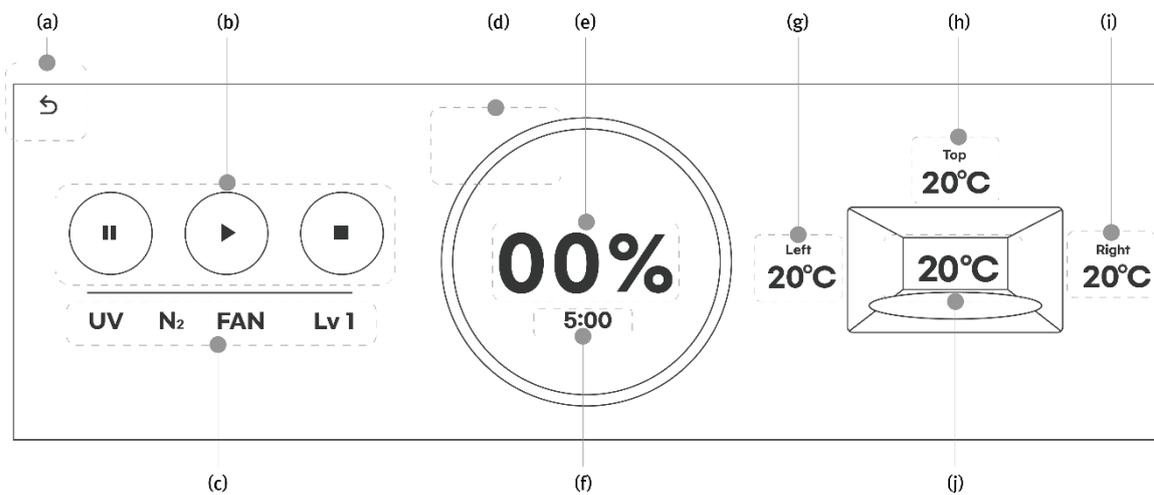
(a) : Return to main screen. (Only when curing is stopped)

(b) : Control the action of curing. (Pause/Play/Stop buttons in sequence)

    Pause: Curing is paused, and curing continues with the progress rate and remaining time.

    Play: If you press it after pause, curing continues, and if you press it after stopping, it starts again from the beginning with the set curing conditions.

    Stop: Curing is stopped, and continues curing is not allowed.

(c) : Displays the current curing status. (UV operation/nitrogen injection/FAN operation/curing level in sequence)

(d), (e) : Curing progress is shown as a pie graph (d) and percentage (e).

(f) : Remaining time

⚠ **Caution**
When nitrogen curing is performed, a separate progress rate is displayed during the nitrogen injection confirmation time (default value is 5 minutes), and when the nitrogen concentration in the chamber reaches the set value, curing starts, and the progress rate and remaining time are reset by the time set in the curing condition.

(g) : Displays Left LED board temperature.

(h) : Displays Upper LED board temperature.

(i) : Displays Right LED board temperature.

(j) : Displays Curing chamber temperature.

⚠ Caution
Each temperature is the result of reading the position where the temperature sensor is embedded, not the maximum temperature of the corresponding part. The displayed temperature has an offset value proportional to the maximum temperature of each part, and is used to protect the equipment.

6. Operation and Curing

□ Normal Curing (without using a nitrogen generator)
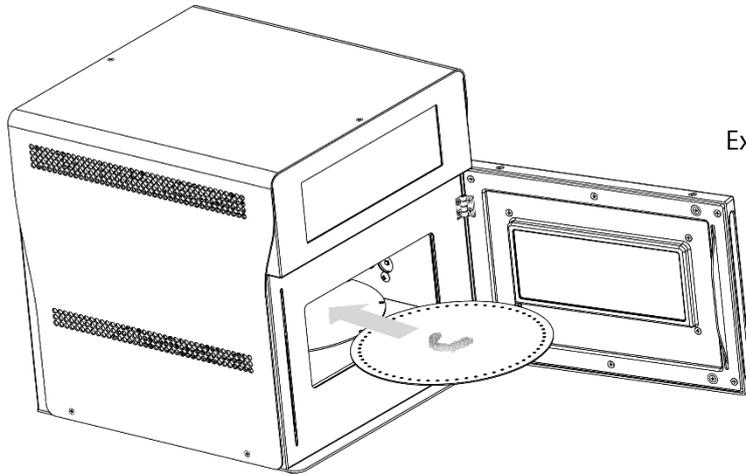
Example) 8 aligners placement
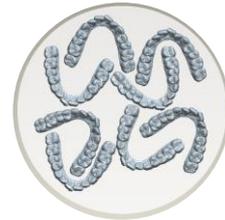
Open the door and put the curing object on the tray plate and put it into the equipment..

⚠ **Caution**
When placing it on the equipment, the protrusions and the grooves of the inner plate must be aligned so that slippage does not occur during rotation at curing.

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Tera Harz Cure
ANOTHER LEVEL OF CURING

Touch anywhere on the screen
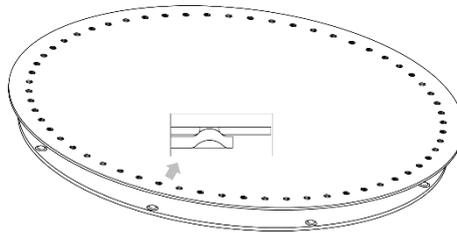
Intro page : Touch anywhere on the INTRO screen shown on the equipment's LCD.
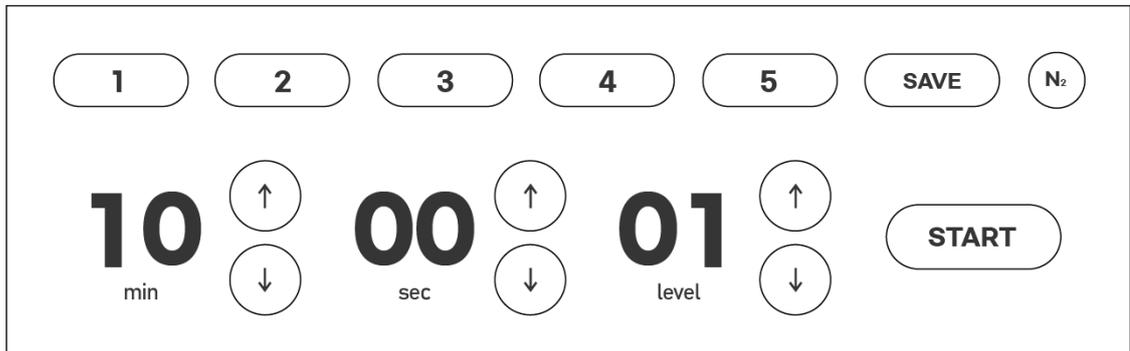
Main page : Start curing by selecting the saved mode from the above screen or by selecting minutes, seconds, LEVEL, and nitrogen curing.

⚠ **Caution**
When performing normal curing, make sure that the nitrogen curing option is disabled. (Curing does not proceed when nitrogen curing is selected)
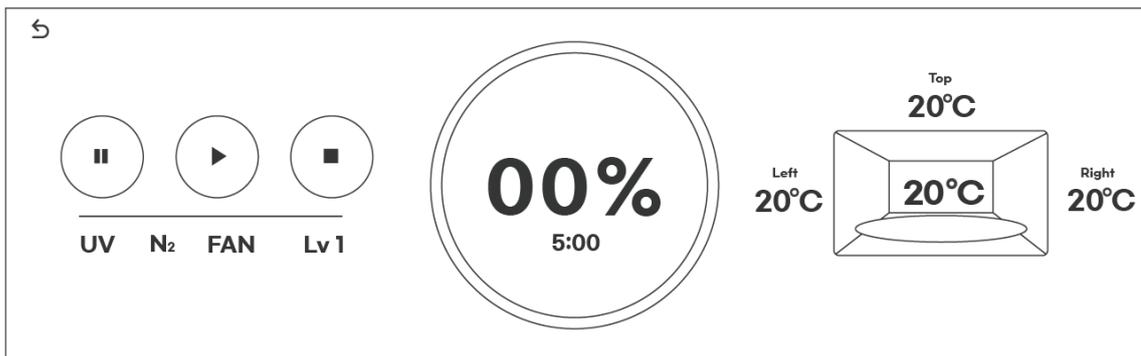
Progress Page : After checking that the time, level, and nitrogen curing set on the curing progress screen are correct, wait until the curing machine is finished.

After the above operation is completed, open the door and take out the cured objects to check the cured state.

⚠ **Warning**
If you hold the cured object or tray plate right after curing, you may get burned or other injury to your hands due to the hot temperature during curing, so be sure to cool it sufficiently or wear gloves before taking out the cured object.

⚠ **Warning**
If you open the door immediately after curing or during curing, the UV LED may not turn off right away. To protect your eyes, open the door after checking whether the inside of the chamber is lit while the door is closed.

⚠ **Caution**
If you want to proceed with the next curing immediately after curing is finished, the internal temperature is high and the curing conditions may change slightly. Use it after having enough cool-time or cooling the inside for a while using an air gun.

⚠ **Caution**
After curing is complete, clean the tray plate before use. The tray plate is a consumable part, and it is recommended to replace it with a new part if the contamination of the bottom surface has progressed to the point where it cannot be cleaned after long-term use.

☐ Nitrogen curing (necessary to connect nitrogen generator)
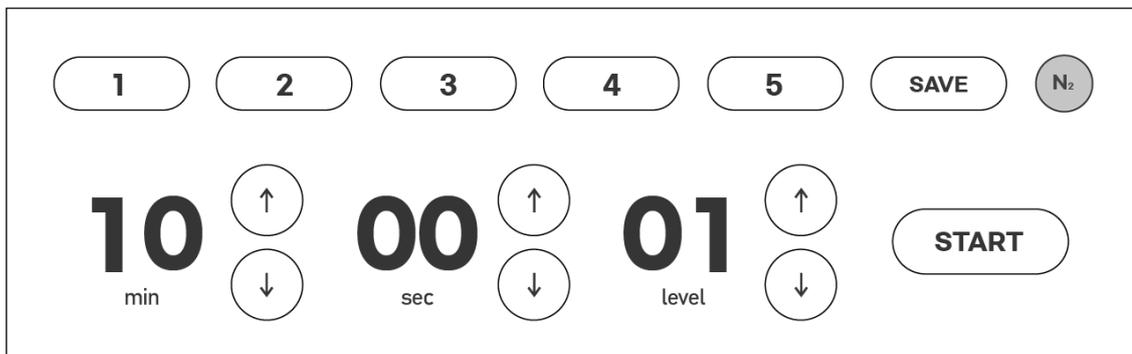
When performing nitrogen hardening, make sure that the nitrogen hardening selection is activated.

After selecting nitrogen curing, start curing after setting the same as normal curing.

When curing starts, nitrogen injection starts first with the sound of the solenoid valve opening, and the progress page displays a graph and remaining time for nitrogen injection.

If the nitrogen ratio in the curing chamber reaches the set value within the time for pre-nitrogen injection (default value is 5 minutes), the graph and remaining time are changed to the curing time and restart.

Please read the precautions (p12) when installing the nitrogen generator.

7. Intro video update (add-on)

Tera Harz Cure standby screen image (intro video) can be changed according to the user's preference. In order to update the intro video, the Updater S/W provided by Graphy Co., Ltd. must be installed.

⚠ **Caution**
The resolution of the intro video (avi) must be 1280x400 for normal upload. If the resolution is different or an error occurs during the upload phase, the intro video set at the factory will be displayed.

1) Double-click the icon below to run the program.

mi_graphy_update_tools.exe

2) Check the below screen.
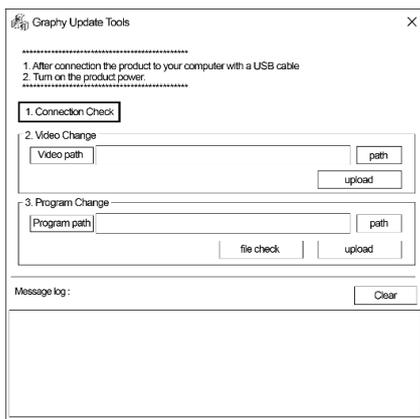
3) Connect PC or laptop and Tera Harz Cure with USB to USB cable.
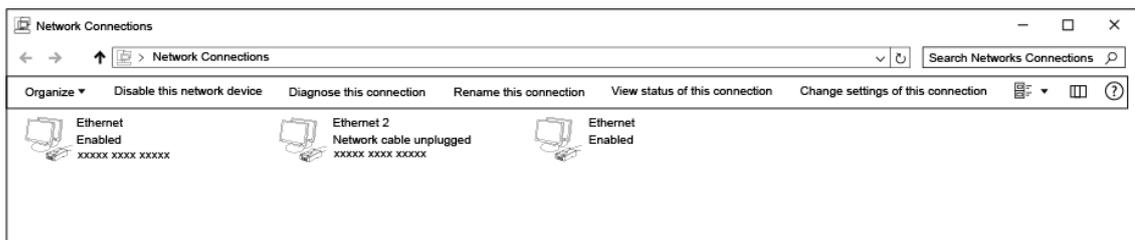
< Network connection setting window before cable connection >

4) After connecting, right-click on the created Ethernet to enter the Properties window.
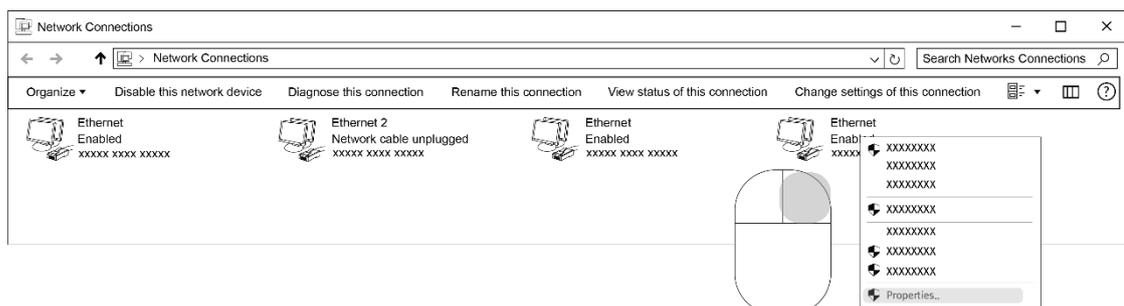
5) At Properties, double-click Internet Protocol Version 4 (TCP/IPv4) to run it, and change it to Use the following IP address (S).
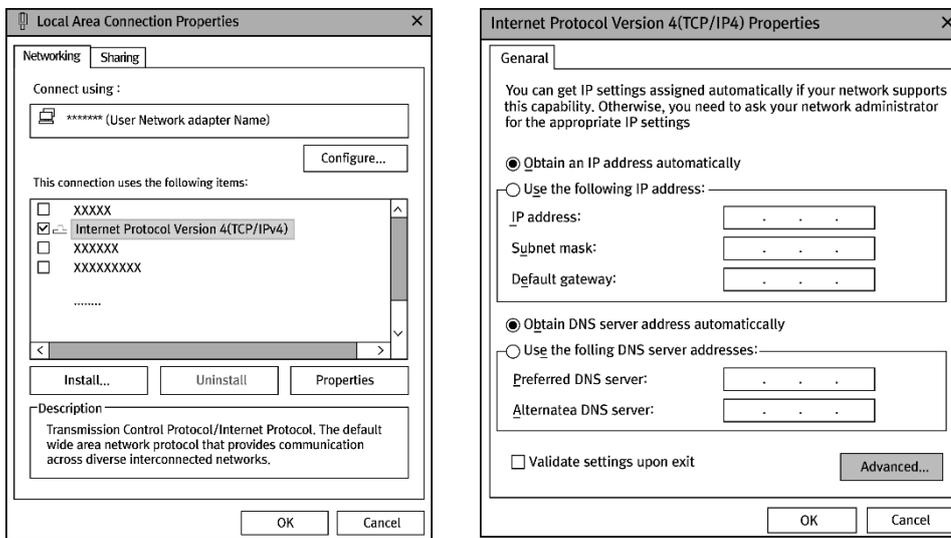
Enter 192.168.0.10 in the IP address and press Tab to automatically enter the value in the subnet mask..
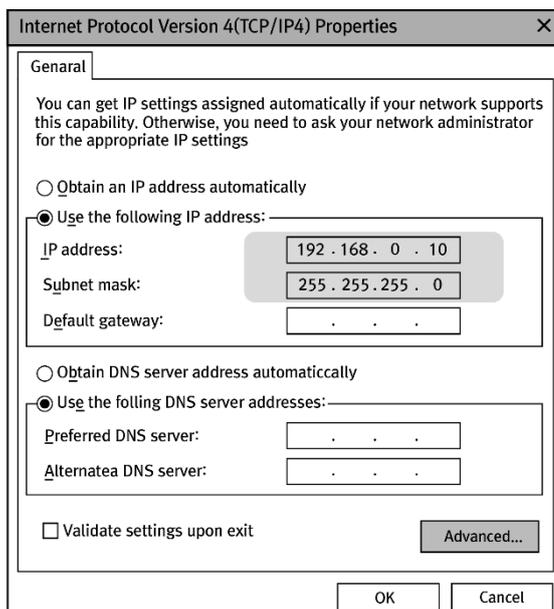
⚠ Caution
If the currently assigned IP address (IP address in use) is 192.168.0.10, it does not matter if you enter a number other than 10, and it is okay if the last digit is not '100'.

6)
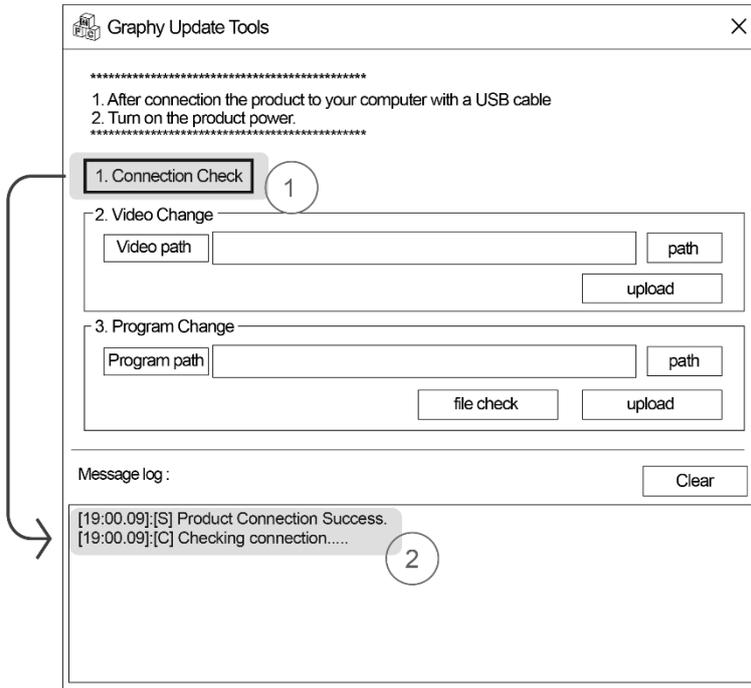
When Connection Check 1 is performed in Graphy Update Tools, if 'Product Connection Success' appears after checking the connection as in No. 2, it means that the connection was successful.

7)
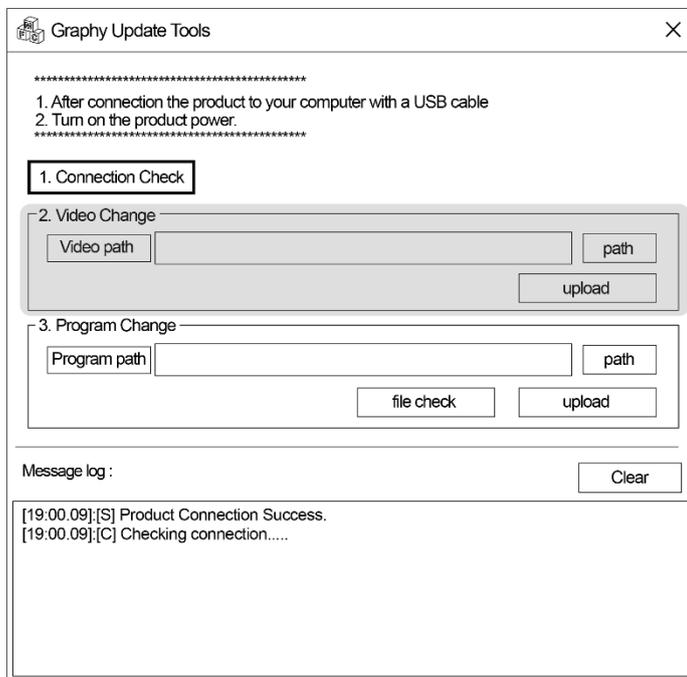
Specify the location of the video to be uploaded in Video change, click upload below to complete the upload, and reboot the device to confirm.

8. Precautions for use

☐ Compliance with equipment use

⚠ **Warning**
If you hold the cured object or tray plate right after curing, you may get burned or other injury to your hands due to the hot temperature during curing, so be sure to cool it sufficiently or wear gloves before taking out the cured object.

⚠ **Warning**
If you open the door immediately after curing or during curing, the UV LED may not turn off right away. To protect your eyes, open the door after checking whether the inside of the chamber is lit while the door is closed.

⚠ **Caution**
Do not use the product for any other purpose than post-curing.

⚠ **Caution**
Do not open the door during Curing process.

⚠ **Caution**
If hardening is carried out for a long time, the door may swell due to internal heat, so use after sufficient cooling.

⚠ **Caution**
Do not arbitrarily disassemble or modify the product.

⚠ **Caution**
After turning off the power switch of the equipment, do not turn it on right away, but turn it on again after about 5 seconds.

⚠ **Caution**
Please note that product damage in situations where the above precautions are not followed are not subject to the free A/S regulation even during the quality warranty period.

□ Safety Instructions

⚠ **Danger**
As this product uses electricity, be sure to attach the power cord with dry hands, and do not use a damaged power cord.   If there is vibration when the power cord is plugged in, or if there are other strange sounds or smells, turn off the power and check.

⚠ **Danger**
Equipment may malfunction due to strong external impact, so be careful when handling the equipment and be careful of impact.

9. Maintenance

☐ Tera Harz Cure

1) For consistent curing quality, please remove foreign substances inside the chamber.

2) When not using the equipment, please turn off the power for the life of the LCD.

3) Be careful not to get foreign substances on the oxygen sensor inside the chamber.

4) Be careful not to get foreign substances on the temperature sensor board inside the chamber.

5) When cleaning the LCD, please proceed with the power off.

6) The tray plate supplied as an accessory must be kept clean to maintain the curing quality.

☐ Nitrogen Generator & Air filter

1) Tighten the air fitting to prevent air leaks that may affect the nitrogen concentration.

2) If there is excessive moisture in the air filter, remove the moisture by pressing the black button under the air filter.

3) When moisture enters the Nitrogen Generator, performance degradation may occur for a certain period of time. We recommend using an air dryer if possible.

4) The filter of the air filter is a consumable and may need to be replaced. The replacement cycle is basically one year, but it can be used continuously as long as there is no discoloration due to dust.

⚠ Filter replacement proceeds as follows:.

1) Hold the air filter bracket and turn the cylindrical air filter body counterclockwise.

2) Detach the turned air filter body by holding it down.

3) Turn the serrated disk counterclockwise to remove it.

4) Detach the old filter and install the new filter.

5) Assemble in reverse order of disassembly.
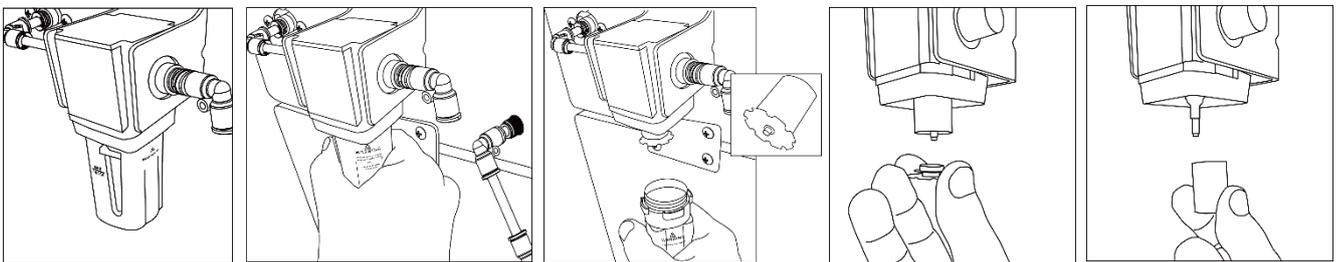
10. Notification Message

NOTICE

The LED running time is approached to
the recommended lifetime.
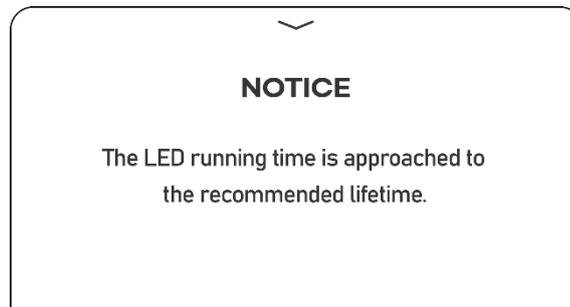
If the replacement cycle is reached according to the recommended LED usage time, the above alarm will be displayed, so please contact the C/S team to replace the LED.

COOLING

For the stable operation
and the efficiency of UV LED
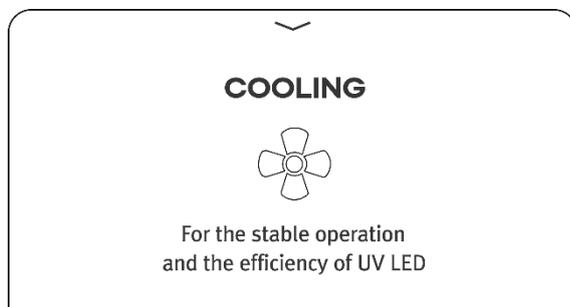
It is an alarm that the temperature of the inside & LED Board is high and is being cooled to lower the temperature. Please use the curing machine after the temperature drops below the proper temperature and the fan stops working.

N2 is not activated.

Please check the air line
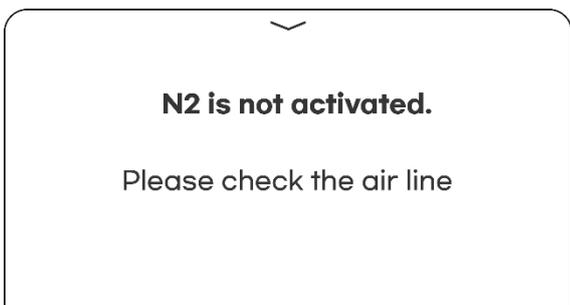
This is an alarm when the internal nitrogen saturation does not exceed a certain level after nitrogen injection is selected. Check the condition of the compressor and the air line, and check if any foreign substances are blocking the nitrogen inlet inside.

11. Repair inquiry

If the contents are not described in the service manual, or if the symptom is not relieved after referring to it, contact the C/S team to check.