GIOTTO smart flat field generator

USER MANUAL

VERSION 1.2

Update 01-07-2025



GIOTTO is manufactured by PrimaLuceLab SpA (Italy). For any matters relating to the use, service and warranty, please refer to the addresses given in the relevant documents.

English

WARNING

If improperly handled, GIOTTO may be damaged. Please follow the instructions below:

- Do not disassemble the unit
- Do not drop, subject to excessive impact, open, or subject to electric shock any part of GIOTTO.
- Do not short the electronic elements
- Do not expose to temperatures below -20°C and above +60°C
- Do not burn or incinerate any component.
- Do not expose to rain or other atmospheric effect related to water
- Do not bend, modify or force any part of GIOTTO

QUALITY CONTROL

After being manufactured in our laboratories, each GIOTTO unit is tested by PrimaLuceLab technical experts to verify all mechanical and electronic components. If you find any malfunction, please contact us immediately (+ 39-0434-1696106 or support@primalucelab.com). Do not try to disassemble, repair or modify the GIOTTO yourself, without our written approval, in order maintain the manufacturer's warranty.

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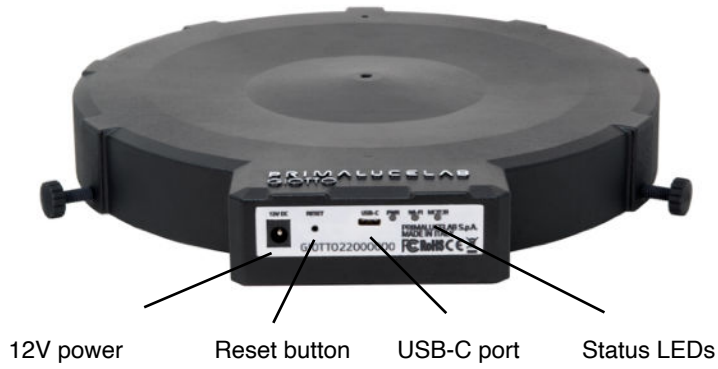
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Component Identification





Package contents

- GIOTTO smart flat field generator
- 3 thumbscrews
- USB-C to USB-A cable
- 12V power cable with cigarette plug
- GIOTTO quick start guide

NOTE

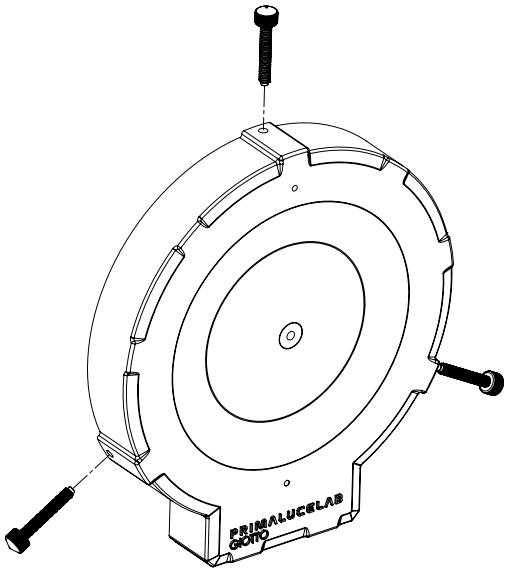
In order to use GIOTTO, you need to download the PLAY software from the

DOWNLOAD

section of our website www.primalucelab.com

Save the package (in zip format) onto the EAGLE or computer you will to use to control GIOTTO. Unzip it with the proper unzip software (You can simply right-click and select “Expand” or you can use software from https://www.-winzip.com).

First use: attaching GIOTTO to front of your telescope



GIOTTO smart flat field generator includes thumbscrews to allow you to affix it to front of your telescope, letting you easily record flat calibration files for astrophotography. A range of GIOTTO models are available, allowing you to calibrate telescopes of different diameters. In the box you will find 3 thumbscrews (made of plastic so they won’t mark your telescope). Insert the 3 thumbscrews into the M6 threaded holes of GIOTTO approximately halfway.

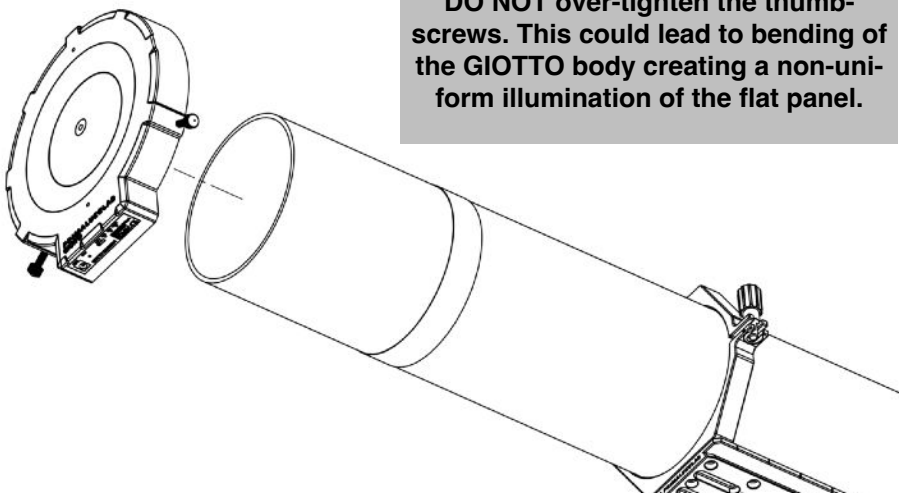
An alternative way to use GIOTTO is to point your telescope to the Zenith and place GIOTTO on top of the dew shield.

You can now place your GIOTTO onto the front of your telescope (**with your OTA pointed upwards - do not place GIOTTO onto your telescope if it is pointed downward**) and lock it in place with the GIOTTO thumbscrews.

Every GIOTTO diameter is able to be affixed to different tube diameters. Please make sure the thumbscrews can reach the telescope and GIOTTO is being held onto your telescope before letting go with your hands, otherwise GIOTTO could fall to the ground.

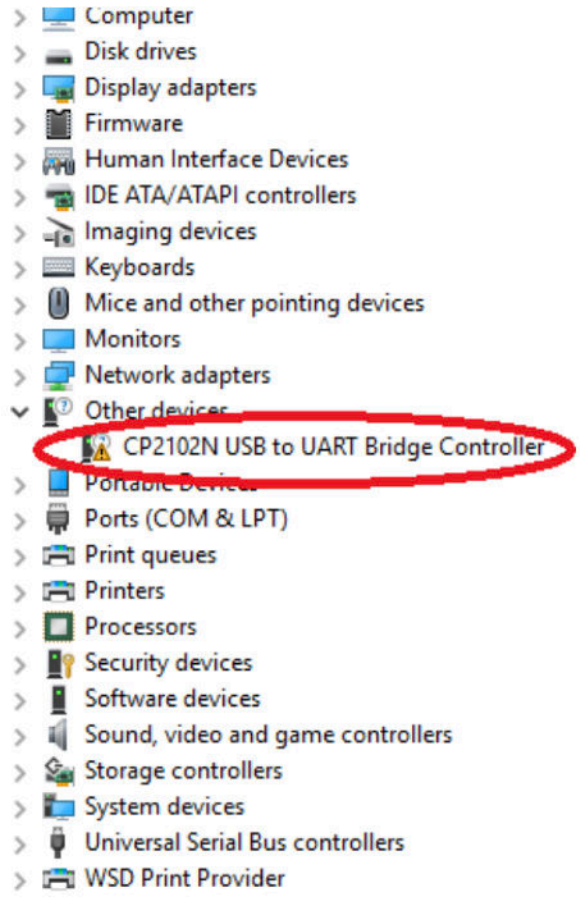
NOTE

DO NOT over-tighten the thumbscrews. This could lead to bending of the GIOTTO body creating a non-uniform illumination of the flat panel.



Install GIOTTO in EAGLE or Windows 10/11 computer

GIOTTO can be controlled using an EAGLE or a standard Windows 10 or 11 computer. To do this, you first need to ensure that the system driver is correctly installed when you connect GIOTTO to your computer. Follow these steps to check and install the driver if necessary:



Connect the USB-C cable from GIOTTO to a USB port on your EAGLE or Windows computer. The PWR LED will turn on and, after a few seconds, the Wi-Fi LED will also light up —this means GIOTTO is online and ready for wireless communication too.

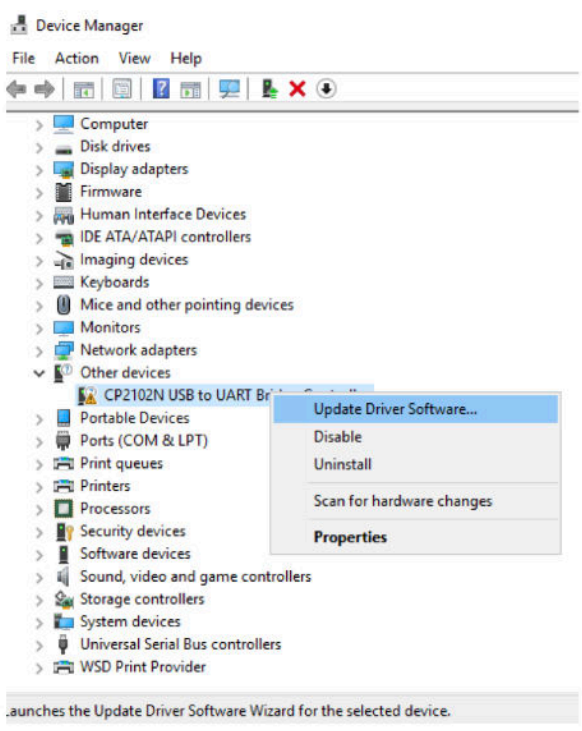
Once connected, GIOTTO should be automatically detected by Windows, which should install the appropriate driver. To verify this, open the Control Panel, go to Device Manager, and check under “Ports (COM & LPT)”. You should see GIOTTO listed as “Silicon Labs CP210x USB to UART Bridge”. To confirm, you can disconnect and reconnect the USB cable and observe how Windows lists the device.

If the device is not listed or it shows a yellow exclamation mark, it means Windows was unable to automatically install the driver. In that case, please follow the procedure below:

1) Download the appropriate software package from the DOWNLOAD section of our website: www.primalucelab.com

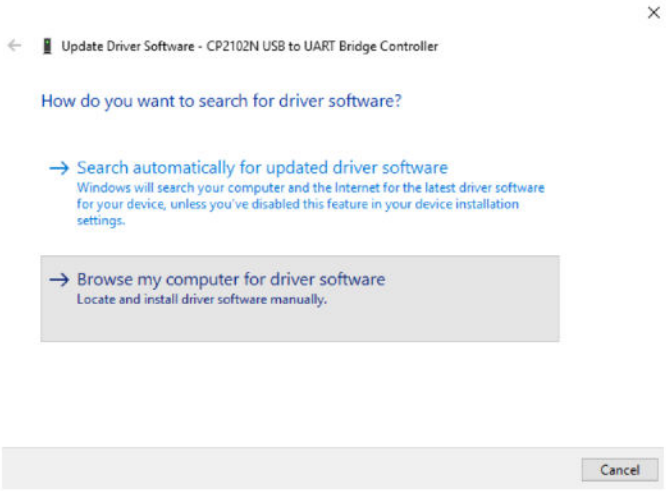
2) Unzip the downloaded file on the same EAGLE or Windows computer where you’re installing GIOTTO.

3) Open "Device Manager”.

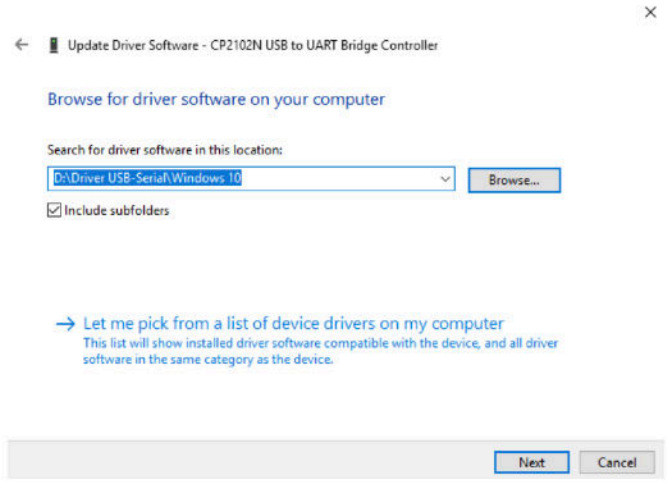


4) Locate "CP2102N USB to UART Bridge Controller" under "Other devices"

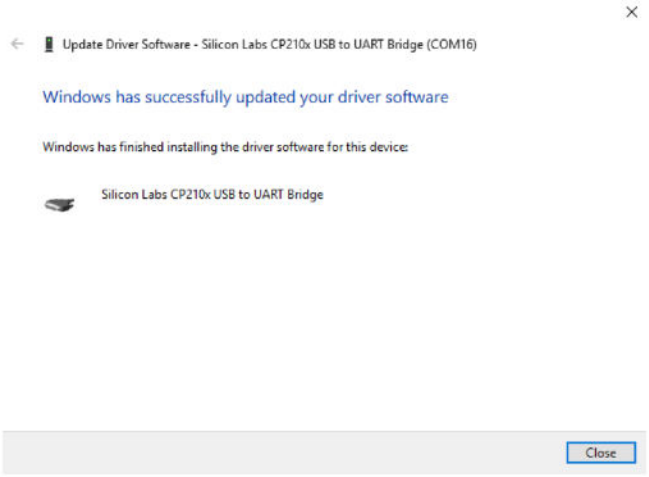
5) Right-click on it and select “Update driver”.



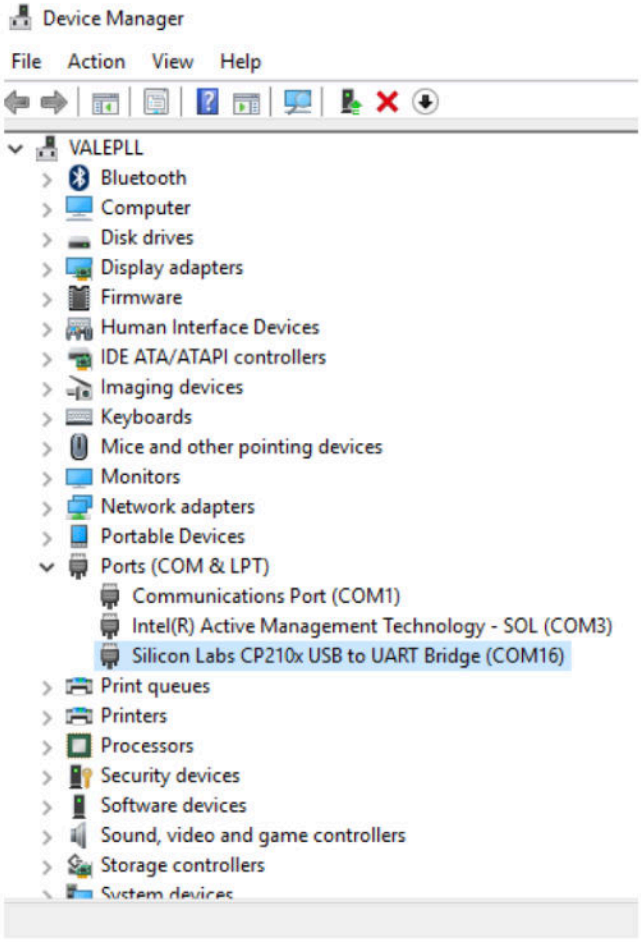
6) Choose the option “Browse my computer for driver software”.



7) Navigate to the folder where you extracted the software package.



8) Click “Next” and follow the prompts to complete the installation.



Once the installation is complete, Windows will display a confirmation message. GIOTTO will now appear under Ports (COM & LPT) with a COM port number—this is the port your computer will use to communicate with your GIOTTO (in this example, COM16). From now on, you won't need to repeat this process. Windows will remember your driver selection and automatically load it every time you boot your EAGLE or Windows computer and connect GIOTTO via USB.

NOTE

If the driver is not correctly installed in your Windows operative system, GIOTTO will not be able to connect to your EAGLE or Windows computer. Please verify that the COM driver is correctly installed before proceeding to the next step.

First use: controlling GIOTTO with PLAY software

GIOTTO smart flat field generator includes remote control capabilities with specially designed electronics that allow you to connect it to a computer's USB port and control flat panel brightness, letting you easily record flat calibration files for astrophotography. In order to start using GIOTTO, please follow this procedure:

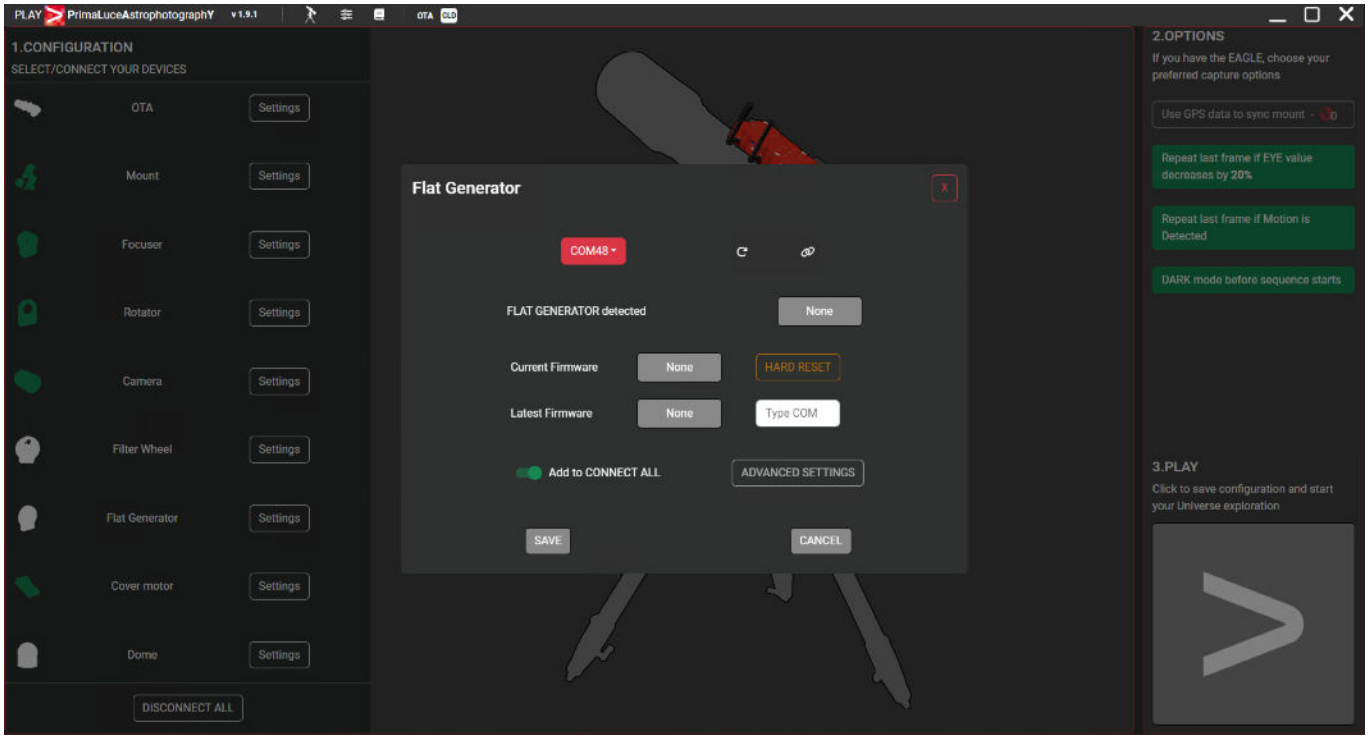
1) Connect 12V power cable (a 12v power cable with cigarette style plug is provided in the GIOTTO box) to GIOTTO's 12V power port, and the other end to a cigarette-style plug of a 12V power source (it may be a 12V battery or a 12V power unit). If you want to power GIOTTO through the EAGLE, you can add the optional PL1000044 EAGLE-type power cable (allowing you to connect GIOTTO to one of the 3A ports of the EAGLE). If you want to power GIOTTO with an external 12V power unit, you will need a 12V power unit that provides at least 1A, with 5.5/2.5 connector central tip positive. You will see the LED lights (PWR and Wi-Fi) in GIOTTO control panel turning ON.

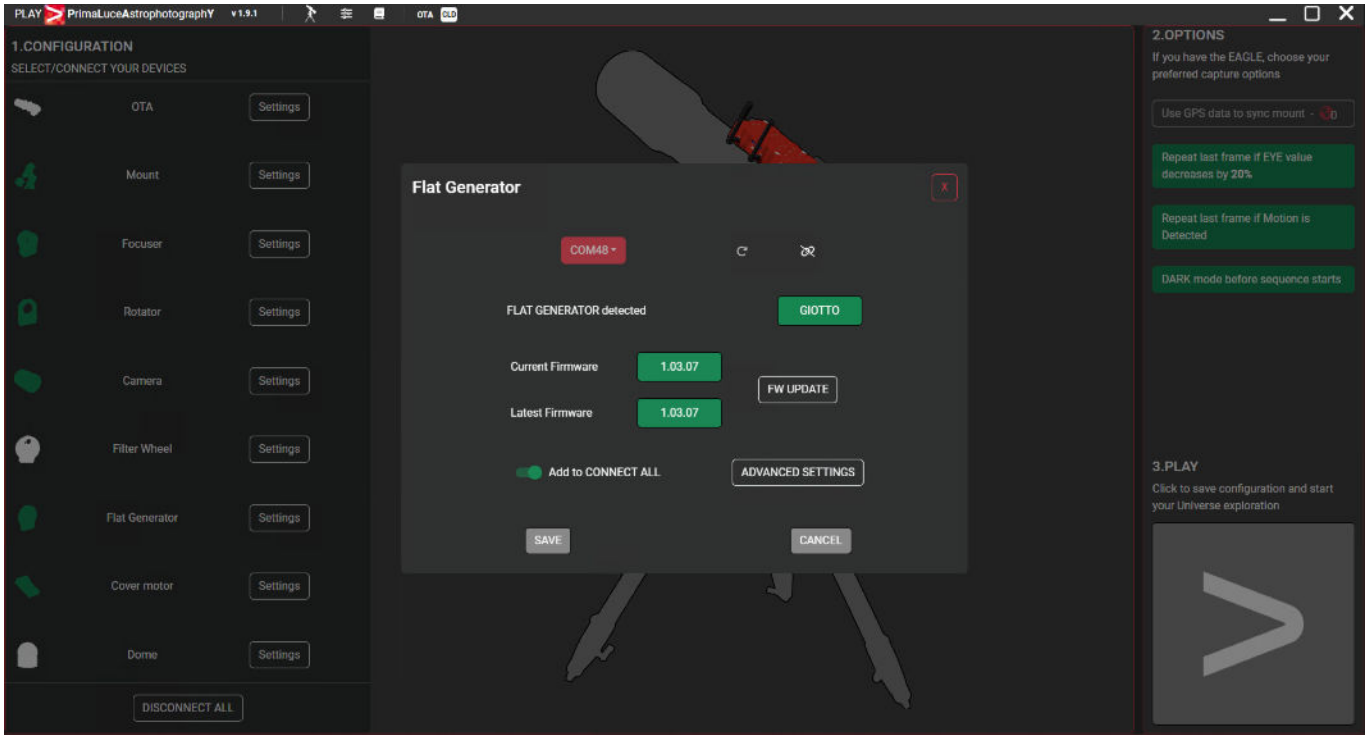
2) Connect USB cable (that is provided within GIOTTO box) to the USB-C port of GIOTTO control panel on one side, and to a USB-A port to EAGLE or standard Windows computer.

3) Launch the Windows Device Manager to find a new entry in the COM port list. Please take note of the COM port number your EAGLE or standard Windows computer creates when you connect GIOTTO to USB port since this will be needed to control it from PLAY software (tip: in order to better identify it, you can also connect and disconnect the USB cable since this will update the Device Manager list).

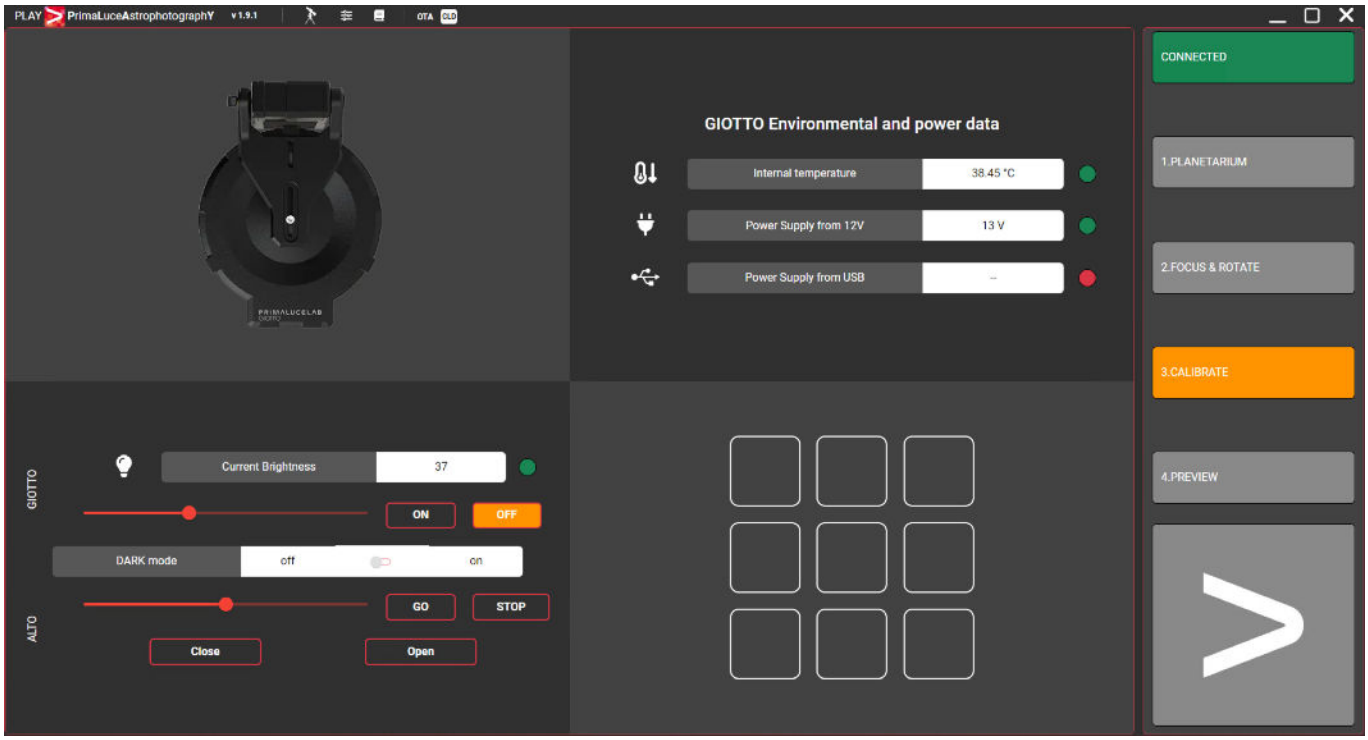
4) Install PLAY software in your EAGLE or standard Windows computer you want to use to control GIOTTO. In the folder where you downloaded and unzipped PLAY installation files, please make double click on the PLAY-Setup.exe file to start the installation procedure. Please note that GIOTTO requires at least version 1.2 of PLAY astrophotography software.

5) Launch PLAY astrophotography software and connect to GIOTTO by selecting "Flat generator" in the left column of the Configurator window. In the window that opens, please select the COM port related to GIOTTO (you noted on previous step 3) and click on the connect icon to start connection.





6) If you selected the correct COM port, you will see the buttons becoming green. Here you will see the current firmware version of GIOTTO and the latest available firmware. If you want to save this setting and quickly connect to GIOTTO the next time you will launch PLAY, select the “add to CONNECT ALL” switch. Then press SAVE button. Press the large PLAY button to the bottom-right part of the screen to access the CAPTURE section and control your GIOTTO smart flat field generator.



7) To illuminate GIOTTO, select a brightness level with the slider and change the switch from OFF to ON. This will turn on the flat panel light at the desired intensity.

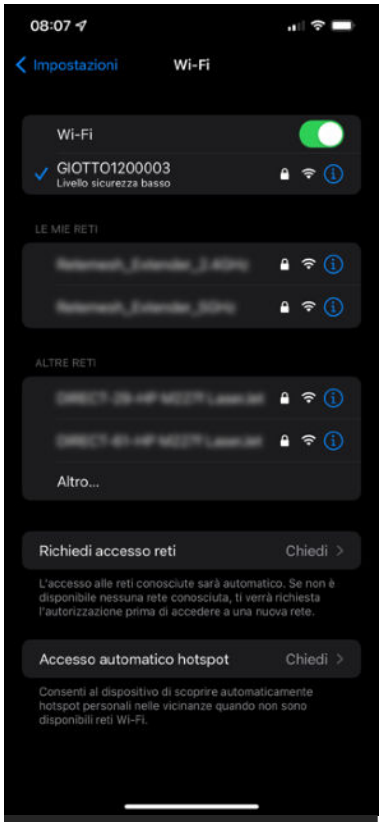
8) In the bottom-left portion of PLAY window, you can enable "*DARK mode*" - this allows you turn off GIOTTO's red LED status lights (please note that with DARK mode enabled, you won't be able to visibly verify GIOTTO's status without accessing it via the provided software).



9) The Virtual HandPad allows you to save up to 9 preset brightness values for your GIOTTO. In order to save a brightness value in the Virtual HandPad, right click on one of the empty buttons to save the position, rename button name or cancel it

First use: Controlling GIOTTO with Virtual HandPad

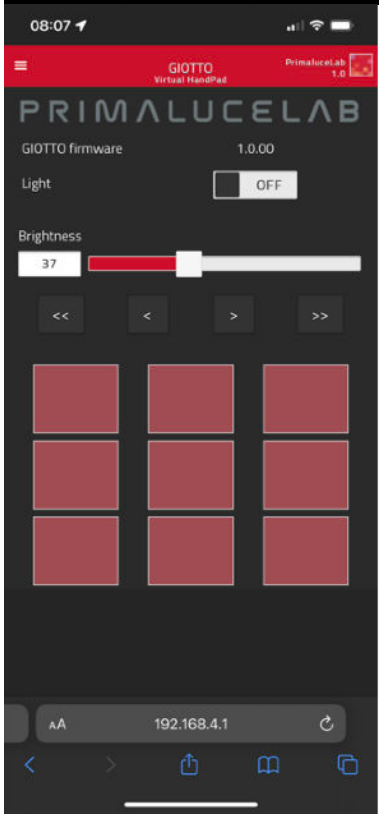
GIOTTO can be controlled without the need of an EAGLE or Windows computer, by controlling it directly via GIOTTO's built-in WiFi connection, using the integrated Virtual HandPad. In order to use GIOTTO through WiFi, please follow this guide (example created on a smartphone using iOS but the process is similar for Android devices).



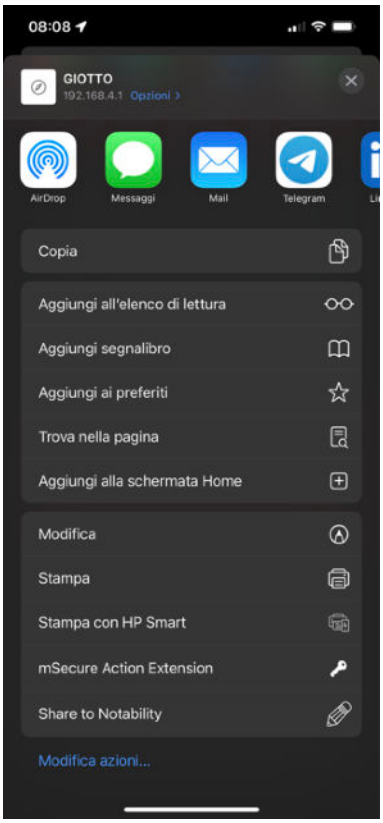
After powering up GIOTTO, enable WiFi on your mobile device and navigate to the wifi settings.

You should now see the network hosted by your GIOTTO, the network name corresponds to your device serial number. Select the GIOTTO#### wifi network. Now, using the keyboard (virtual or physical) of your device insert "primalucelab" as the default password (or password you chose if you modified the default password) and then press the "Login" button. The next time you want to access your GIOTTO, you will no longer have to enter the password: your device will automatically connect when you select the network created by GIOTTO, unless you change the login password. Wait a few seconds for confirmation that your device is properly connected to the WiFi network.

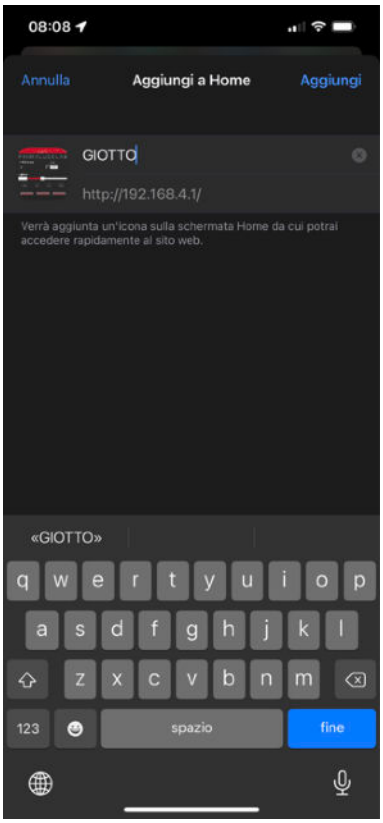
If you see a "Connected - No Internet" notification on the selected GIOTTO network, this is alerting you that you are connected to GIOTTO, but that there is no internet connectivity - this is expected since GIOTTO is not an internet connected device.



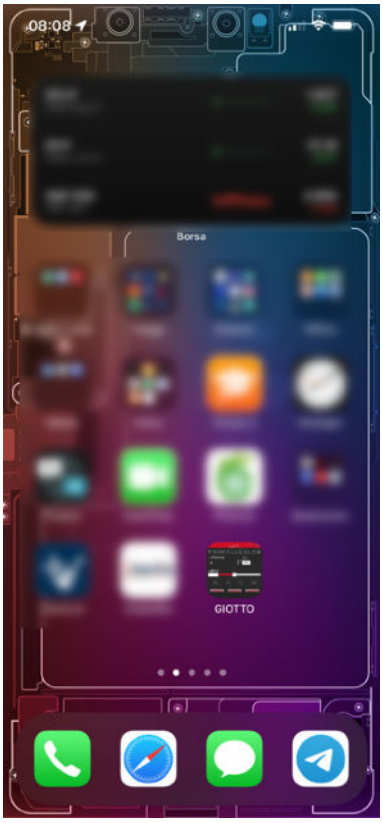
Now open a browser on your mobile device (for example Chrome or Safari), and enter the IP address "192.168.4.1" into the URL field (where you usually enter urls like www.primalucelab.com) type and press <return>. The GIOTTO Virtual HandPad should load on your screen.



To create an app icon to connect to GIOTTO directly on the home screen of your mobile device, simply press the "share" button and then select "Add to Home".

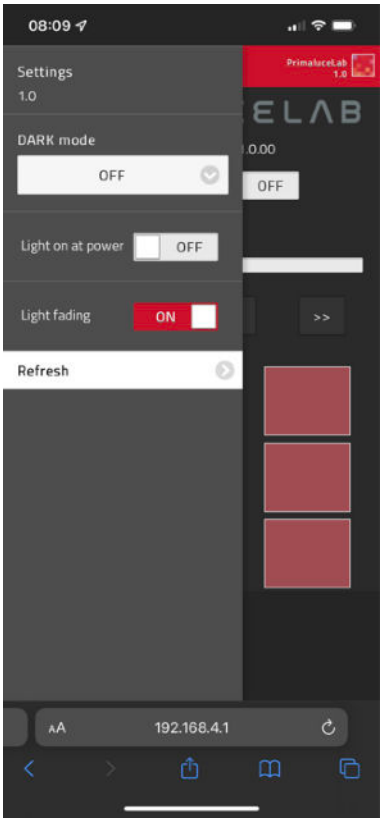


You can personalize the name. Press Add button to confirm.

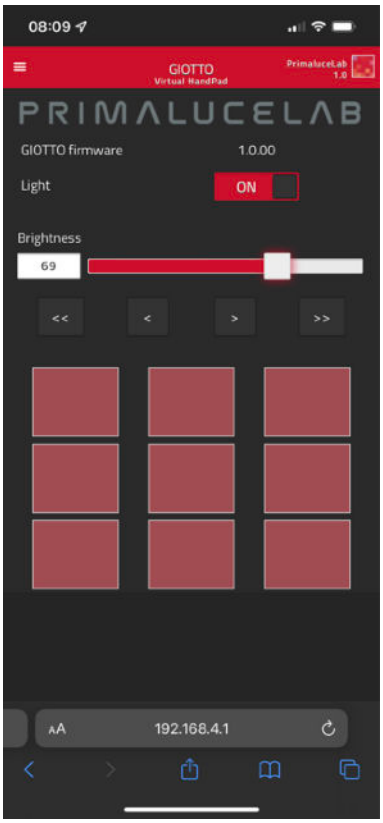


The GIOTTO connection will be created and you will have a shortcut to your device.

Press the GIOTTO button to start the Virtual HandPad allowing you to control and use GIOTTO without the need to be connected to an EAGLE or to a Windows computer.



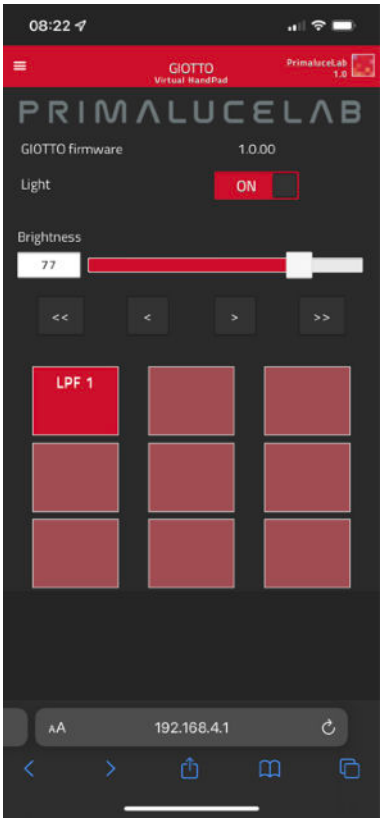
Press the menu button on the top-left part of the Virtual HandPad to reveal the left menu.



In the portion of the Virtual HandPad below the menu bar you find the controls for GIOTTO.

In order to use GIOTTO, select a Brightness level with the slider and switch from OFF to ON. This will turn on the flat panel light at the desired intensity.

You can also use change the Brightness value by clicking on the **<** or **>** buttons to change the value by 1, or by clicking on the **<<** or **>>** buttons to change the value by 10.



The Virtual HandPad allows you to save up to 9 preset brightness values for your GIOTTO. In order to save a brightness value in the Virtual HandPad, tap and hold one of the empty buttons: the position will be automatically saved with a “Preset” name.

In order to change the button name, tap on the name of the button and you will be able to change it by using the virtual keyboard of your device. Press ENTER button to confirm the new name.

If you want to delete a preset brightness value, tap on the name of the button until you’re able to change it. Then completely delete button name and press OK button. This will delete the preset button value.

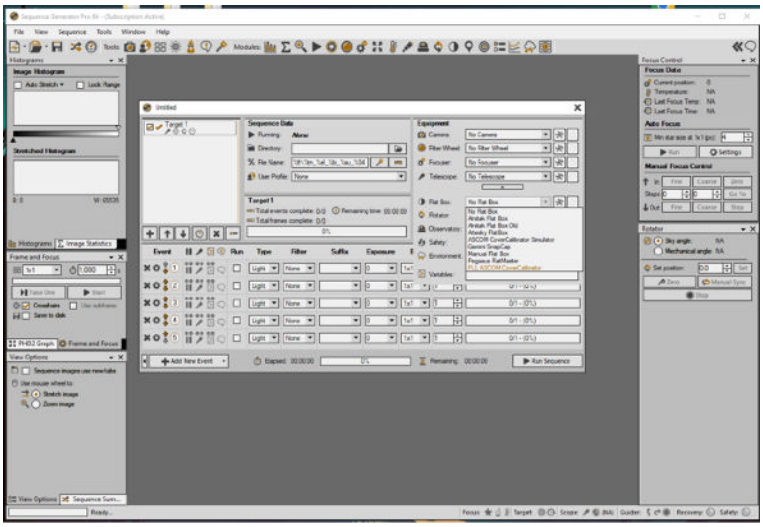
Controlling GIOTTO with ASCOM drivers and third party softwares

GIOTTO smart flat field generator can also be controlled within third party software such as Sequence Generator Pro or NINA via ASCOM using the included “PLL ASCOM CoverCalibrator” driver (ASCOM platform version 7 or later required). The ASCOM platform is available for free download at their website - https://ascom-standards.org

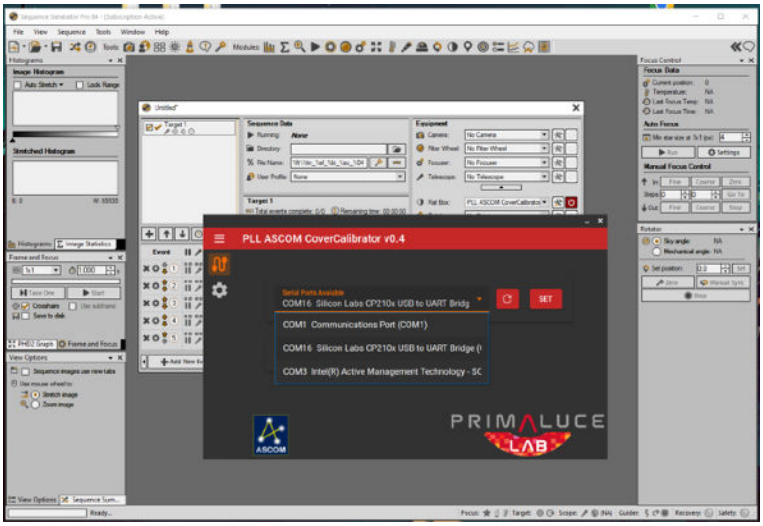
To install “PLL ASCOM CoverCalibrator” driver onto an EAGLE or comparable Windows computer, double click on the PLL ASCOM CoverCalibrator.exe file included with the GIOTTO software package downloaded from the DOWNLOAD section of the www.primalucelab.com website. A new window will appear, select “I accept the agreement” and press Next button to proceed. In the next window, press the Install button to proceed with installation. When the installation is completed, press the Finish button.

You can now control GIOTTO by using third party softwares that support flat field generators through ASCOM. This guide will show how to connect by using Sequence Generator Pro as an example. Other software is similar, please refer to third party software user manual to read how to connect to devices through ASCOM.

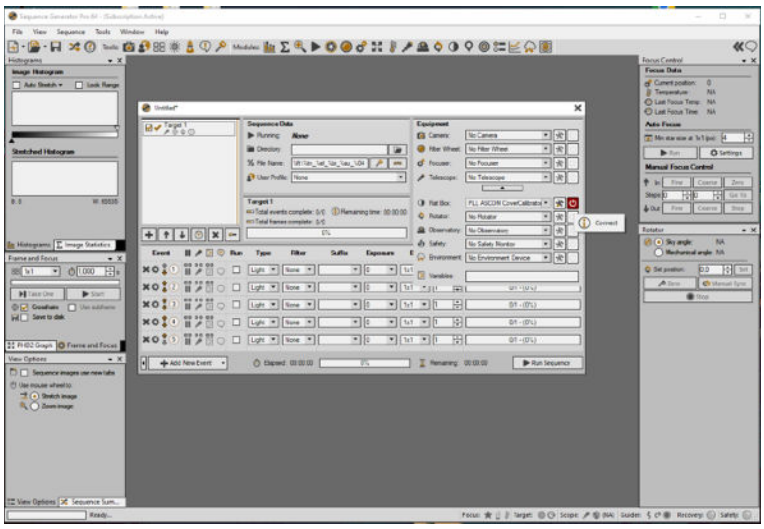
1) Launch Sequence Generator Pro and, in the sequence window, under “Flat Box” (expand the dropdown under equipment), and select “PLL ASCOM CoverCalibrator”.



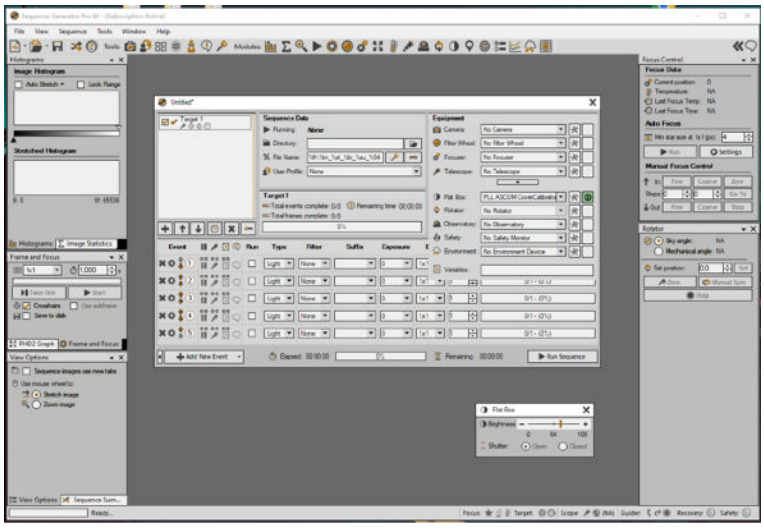
2) Click on the Settings icon, you will see the ASCOM driver window. Here, select the COM port related to GIOTTO and press SET button.



3) Click on the Connect button to activate connection to GIOTTO.



4) Connection will be established and you will see the “Flat Box” window that allows you to adjust GIOTTO brightness.



INFORMATION TO USERS



According to art. 26 of Decreto Legislativo 14 marzo 2014, n. 49 "Attuazione della Direttiva 2012/19/UE sui rifiuti di apparecchiature elettriche ed elettroniche", the symbol of the barrel placed on the equipment or its packaging indicates that the product at the end of its useful life must be collected separately from other waste.

The user will therefore have to give the end-of-life equipment to the appropriate separate collection centers for electronic and electrotechnical waste or to return it to the reseller upon the purchase of a new type of equivalent equipment, one by one.

Properly differentiated collection for the subsequent start of dismantled equipment for recycling, treatment and environmentally compatible disposal helps to avoid possible adverse effects on the environment and health and favors the reuse and / or recycling of the materials contained in the equipment.

The abusive disposal of the product by the user implies the application of the administrative sanctions as per D.Lgs. 152/2006.

Compliance with the RAEE legislation (D.Lgs. 49/2014)
PrimaLuceLab is registered to AEE Register with number IT17030000009790
PrimaLuceLab adheres to Sistema Collettivo ERP Italia for the compliance to RAEE legislation.

European Recycling Platform

FCC COMPLIANCE STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and the receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

FCC RF Exposure Statement
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm (8 inches) between the radiator and your body.

Wireless Module Compliance
This device contains an ESP32 Wi-Fi module, which has been certified by the manufacturer to comply with FCC regulations. Any modifications or changes to this device not expressly approved by PrimaLuceLab could void the user’s authority to operate the equipment.

WARRANTY

1) The PrimaLuceLab product warranty is effective from the date of purchase and is valid only if it is accompanied with receipt or proof of purchase.

2) The warranty covers the product against defects in workmanship and includes the cost of the replacement parts and labor.

3) The warranty does not cover any damage caused to the product or failures that occur due to improper installation , improper use and/or deterioration due to normal wear.

4) THE GUARANTEE DOES NOT APPLY IN THE FOLLOWING CASES:
   - Repair by anyone not authorized by PrimaLuceLab .
   - Invasive interventions or tampering with internal and/or external parts.
   - Missing receipt or proof of purchase.

TERMS OF SERVICE
Technical assistance is performed exclusively by PrimaLuceLab or its authorized resellers. All returns must be received with our permission (to be submitted in writing via email to support@primalucelab.com).

YOU MUST ADD a detailed description of the defect along with a copy of your or receipt or proof of purchase in the return shipment. For products without the invoice (or receipt) of purchase, repair and shipping costs will be paid by the customer.