



# helioCORE™

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## User Manual



# Revision History

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# Safety Information

- The product must be plugged into a grounded outlet.
- Mains power must be disconnected before any installation or service work starts. This is done either by unplugging the connector from the power socket or by switching off the main power switch.
- Enclosure should be mounted with the cable entries facing down.
- Should not be operated on an altitude above 4000 meters.

# Technical Data

- Voltage: 100-240VAC
- Frequency: 50/60Hz
- Rated power: 60W
- IP class: IP54
- Ambient temperature during operation: 0 – 55 °C
- Ambient temperature during storage: -20 - 70 °C
- Relative humidity during operation: 5 - 90 % at 30 °C, no condensation
- Relative humidity during storage: 5 - 95 % at 30 °C, no condensation

# Download

A digital version of the manual can be downloaded from Heliospectra support web, follow this link <https://support.heliospectra.com/portal/en/kb/articles/heliocore-manual>.

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# 1. Pre-Setup Checklist

Make sure that you complete these steps before you attempt the setup tasks documented in this guide.

1. Install lights
2. Install helioCORE™ box
3. Install helioCORE Sensor Hub and light sensors (only for On Target or DLI users)

# 2. helioCORE™ Icons



Dashboard



Events



Find Lights



Grow Zone



Edit



Search Lights



Analytics



Lights



Delete



Systems



Status



Power Consumption



Settings



Information



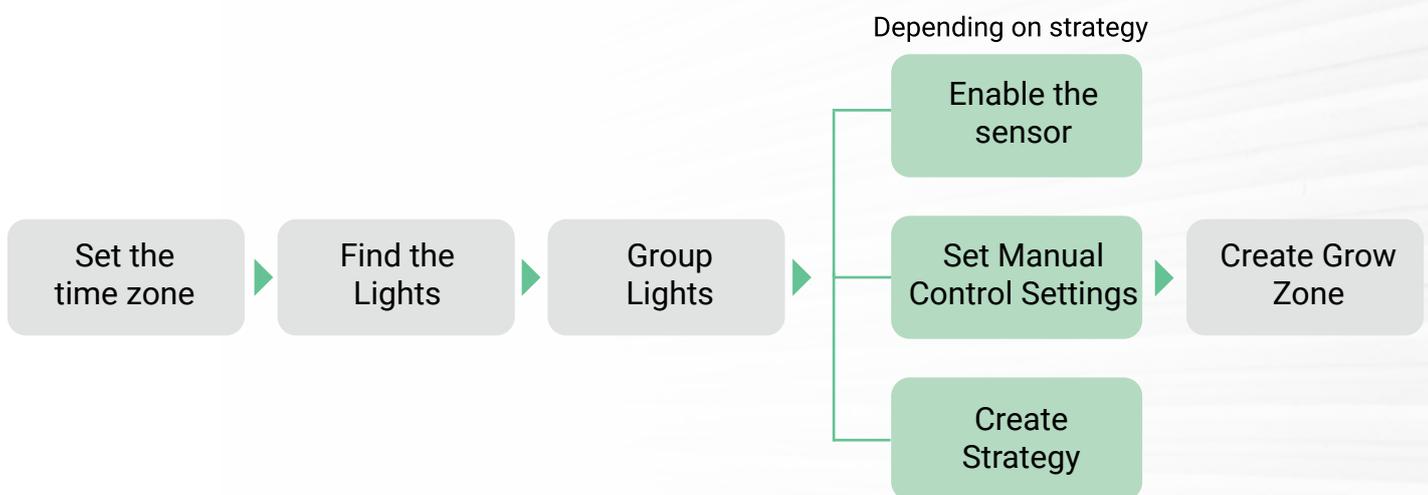
Days



Sensors

## 3. helioCORE™ Setup

These are the steps that you need to complete in order to set up your helioCORE, they are all covered in this guide.



## 4. Accessing helioCORE™

Now that you have completed the steps on the pre-setup checklist you are ready to log on and start configuring your helioCORE.

Your helioCORE box is connected to your router, you need the IP address for this router to be able to access the helioCORE user interface.

Commonly the IP address of the router is on the sticker on the base of the router. If you are unable to physically access the router you can still find the IP.

- **Windows** – In the Settings menu, find Network & Internet, click View Your Network Properties and you will see the IP address next to Default gateway
- **Mac** – Open System Preferences, find Network, click Advanced and then the TCP/IP tab the IP address is next to Router
- **Mobile phone / Tablet** – helioCORE is available in the web browser by its' IP Address

Once you have the IP address of your router you need to go into your browser and type it into the address bar. It will take you to your router interface, where you have to find the helioCORE in the lease list. Copy that IP and type it into a new tab in your browser, this will then take you to your helioCORE dashboard.

! N.B. We advise you use an up to date version of Firefox, Chrome or Safari to access helioCORE. If you have issues getting the page to load, or if does not operate as described in this manual, please try a different browser.

# 5. Dashboard

The homepage on helioCORE is the Dashboard, where you also see the main menu. On the Dashboard you will find information about the number of created Grow Zones, Lights and Sensors connected to the helioCORE network as well as received Notifications. By clicking on their sections, you will be moved to corresponding pages. At the Dashboard you will also find the basic information about power consumption of lights connected to the system.

## Overview of helioCORE dashbord.



**helioCORE Menu**

- Dashboard
- Grow Zones
- Analytics
- System
  - Lights
  - Groups
  - Sensors
  - Strategies
- Settings

**Nr of Grow Zones Total + Active**: 4 / 8 Active Zones

**Total Assigned & Unassigned Lights**: 3

**Total Active/ Inactive Sensors**: 0

**Notifications**: 0 New Notifications

**Power Consumption**  
Total Power Usage

**Analytics Dashboard**

## 5.1 Active Zones

At this section you can see the number of active and inactive Grow Zones that you have created. When you start the program the first time, these will all display as 0.

A Grow Zone can define an area where a grower intends to grow crops under the same lighting strategy, i.e. under the lights using the same settings. For example, a grow zone can be created for all lights in a greenhouse or a group lights in a greenhouse compartment, a grow room with the same crop, a dedicated area on a bench or a shelf etc.

Click at the Active Zones section on the Dashboard to be moved to the Grow Zones' page. You can also select Grow Zones from the main menu (see overview on previous page).

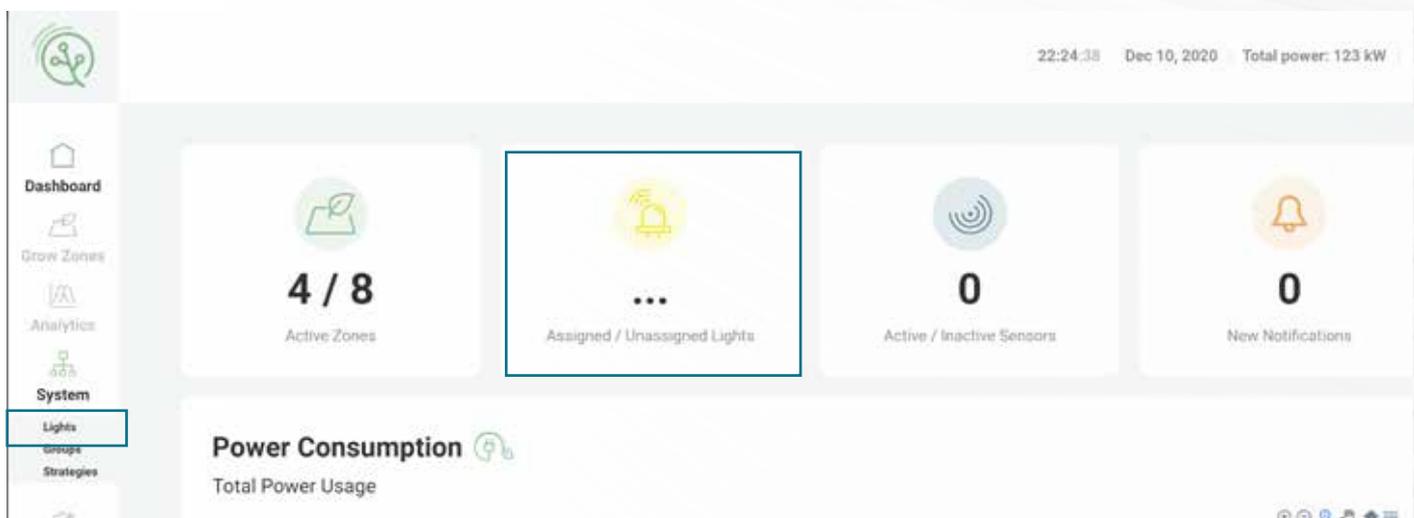
Information about creating and editing Grow Zones is covered in section nine of this manual.

## 5.2 Lights

At this section, you can see the total number of lights that are assigned or not assigned to a certain Grow Zone. When you start the program the first time these will display as 0.

Click at this section, "**Assigned / Unassigned Lights**" to be moved to the Lights' page and the list of All Lights connected to your helioCORE™ system.

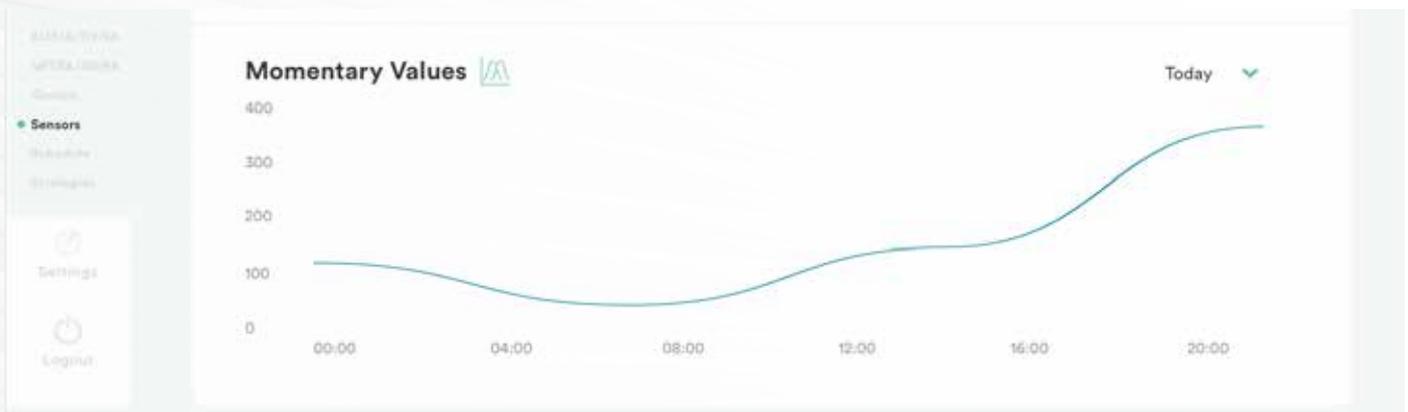
You can also select **System > Lights** from the main menu. Lights page is covered in section 6 of this manual.



## 5.3 Sensors

This section is only applicable if you are using helioCORE sensorHUB and sensors.

The Sensor section shows data from the sensors enabled in your helioCORE system on a graph. When you have set up and enabled your sensors you will see indicators for each sensor on the graph. The name of each sensor shows at the top of the graph, if you click on this you will see the full page for that sensor.



This Sensor page is covered in section seven of this manual so please refer to that for more details.

## 5.4 Notifications

 To see new notifications, click on the bell icon at the top right corner. You can also go directly to the Notification section. When you first go onto the Dashboard the Notifications section is likely to be empty. The green icon on the bell shows number of notifications.

Click on Filter notifications where the Notifications section shows any notable activities that have occurred within helioCORE categorized in the following three categories:

-  Success icon, this denotes successful changes and re-connections
-  Information icon, this denotes actions that have taken place
-  Warning icon, this denotes lost connections, signal failures and errors

For a better view you can filter notifications by clicking the category icon at the Filter notifications menu.



If you wish to delete notification, you can click on the delete icon displayed next to it. Clicking on the delete all at the top of the screen will delete all the notifications. To return to the Dashboard, choose it from the main menu.

## 5.5 Power Consumption

You can find a graph showing the total power consumption of all your Grow Zones in the Dashboard and under the Analytics Section.

For a better view click at the Analytics section to see the power consumption for one or several Grow Zones.

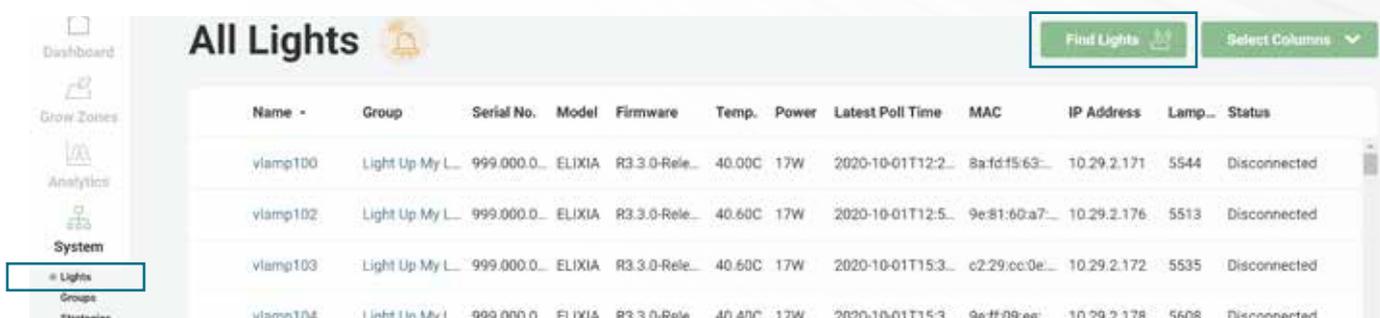
# 6. System – Managing Your Lights

Under the System option on the main menu you can find functions for organizing and controlling your lights. It is divided into three sections: **Lights, Groups, and Strategies**.

## 6.1 Connecting Your Lights

“All Lights” page can be accessed by clicking the Lights section at the Dashboard or selecting System and then Lights from the main menu.

At the top of the page you will see a button labeled Find Lights. Clicking this button will make helioCORE scan the network to find any unassigned lights. A new window will open, and here you will see here that it is scanning the network. After 10 seconds the scanning icon will disappear but helioCORE will still be finding lights.



Name	Group	Serial No.	Model	Firmware	Temp.	Power	Latest Poll Time	MAC	IP Address	Lamp...	Status
vlamp100	Light Up My L...	999.000.0...	ELIXIA	R3.3.0-Rel...	40.00C	17W	2020-10-01T12:2...	8a:fd:15:63...	10.29.2.171	5544	Disconnected
vlamp102	Light Up My L...	999.000.0...	ELIXIA	R3.3.0-Rel...	40.60C	17W	2020-10-01T12:5...	9e:81:60:a7...	10.29.2.176	5513	Disconnected
vlamp103	Light Up My L...	999.000.0...	ELIXIA	R3.3.0-Rel...	40.60C	17W	2020-10-01T15:3...	c2:29:cc:0e...	10.29.2.172	5535	Disconnected
vlamp104	Light Up My L...	999.000.0...	ELIXIA	R3.3.0-Rel...	40.40C	17W	2020-10-01T15:3...	9e:ff:09:ee...	10.29.2.178	5608	Disconnected

Close this window by clicking on the exit icon.

On the All lights list you should see new lights being added. It can take some time for all the lights to be found so keep checking the list until you can see all your lights. You can check the number of lights connected to the system at the dashboard. If there are still some lights missing after a few hours you can click the Find Lights button again.

### **Confirm Latest Firmware**

When the lights are found, if they are not on the most up-to-date version of the firmware, helioCORE will update them to the latest version. Therefore, if you see the status of a lamp is showing as Updating firmware. You can see the version of the firmware that the lamp is on in the Firmware column, when all the lights show the same version you know that the firmware has been updated on all of them. Make sure that all the lamps have finished this process before you move on and do any further set up. When updating their firmware, the lights will switch off and on again.

If helioCORE cannot update the firmware you will see that the version in the Firmware column does not update and the Status of the lamp changes to disconnected. In this case you will need to contact [support@heliospectra.com](mailto:support@heliospectra.com) and they will help you resolve the problem.

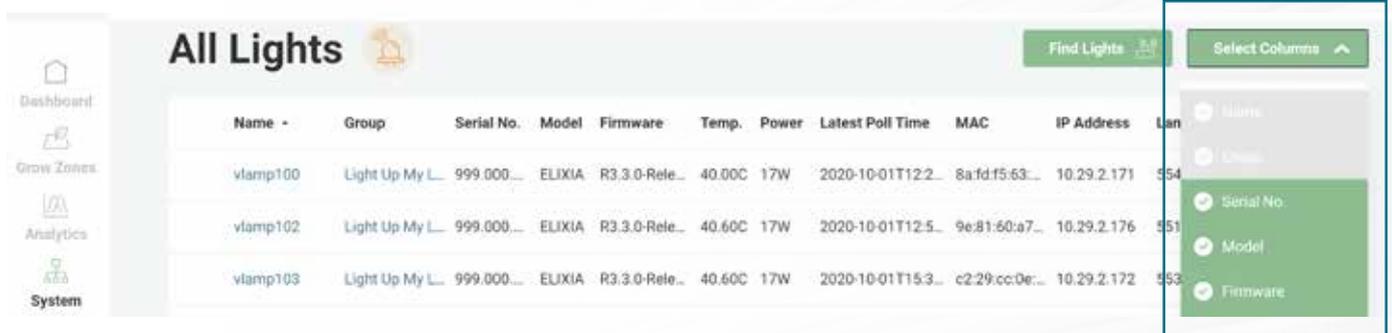
## **6.2 Information About Lights**

### **6.2.1 All Lights list**

The list of lights that you see when you click at the Lights section at the Dashboard or select **System > Lights** from the main menu can be a very useful place to check the technical and operational information about your lights;

- Name of the light – that is default or assigned by the user
- Group to which the light was assigned
- Serial Number of the fixture
- Model of the fixture
- Firmware version on the fixture
- Current temperature of the LED plate
- Current power consumption of the fixture
- Latest poll time – that is time when the system checked up the lamp status
- Mac Address of the light
- IP Address
- Light ID – that is assigned by the system (not to be confused with the Serial Number)
- Status of the light – system information about light it, typically it is “OK” when all works properly, “Disconnected” – when the system lost contact with the lamp, “Weak WF” when there is problem with wireless network, or “Firmware update”.

For a better overview you can select the information you want to be displayed on the list by clicking at Select Column button and ticking information you wish to see.



When you connect a light to the system for the first time the default Name of the light will be displayed. If you click on that name, you will be taken to the page for that individual light. At the individual light page, you can i.a. edit its name. Once you assigned lights to a Lights' Group you will see the name of this group. Before this step it will be displayed as unassigned. Click on the group name to be taken to the page for that individual group.

## 6.2.2 Naming Your Lights

Clicking on one of the names in the list of All Lights opens a page for that individual light.



In order to know which light you are looking at identify the physical location of a light in the helioCORE system, you can click on the blink icon at the top of the page and the light in question will blink on and off once.

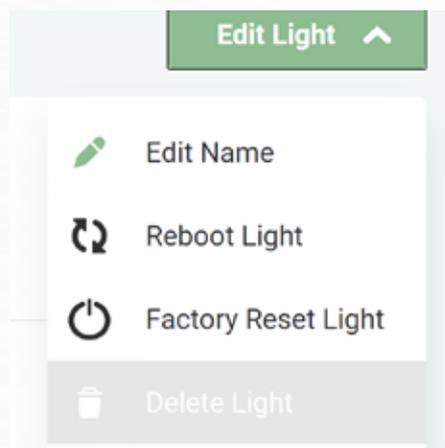
Now that you have identified the light you are working on, you can give it a more meaningful name. A good way of naming them is within the format of a grow room, the row and the position at the row they are located, for example "Room1 Row8 Light4".



To change the name, click on the Edit Light button at the top of the page and choose Edit Name. Then type it in and save it by clicking at the OK button.

## 6.2.3 Reboot Light

If something is wrong with the light you can reboot it. To reboot the light click the Lights from the System menu, click the light to reboot and choose Reboot option under Edit Light button, Rebooting will restart the light, but all the settings will be kept.



## 6.2.4 Factory Reset Light

If the reboot option does not work or if you have moved the light and need to start a fresh start, then you can use the factory reset option. This will wipe all history and settings including WiFi settings. Click on the light to reset, click Edit Light and chose Factory Reset Light from the dropdown menu.

If you use WiFi you will need to set up the WiFi connection on each reset light again. Until you set up the WiFi, the light status will show as disconnected.

# 6.3 Creating and Managing Light Groups

Rather than controlling each individual light helioCORE controls Light Groups. A Light Group is an assembly of lights which are physically located in the same area (a Grow Zone) and will be used with the same settings. If you wish to control each light separately you can create a Light Group for each light and assign only one light to it.

Once you have created your Light Group you will have to assign it to a Grow Zone to control the lights in this Light Group. An individual light can only be in one group at a time. To move a light to a new group you must first remove it from its current group.

## 6.3.1 Creating a New Light Group

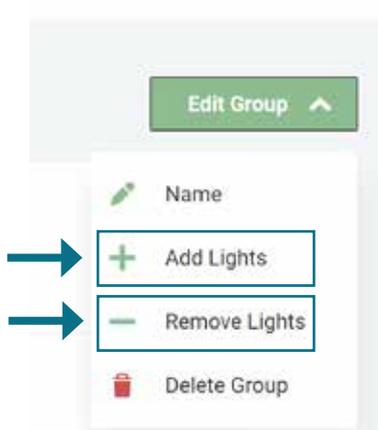
Access light group page by selecting System and then Groups from the main menu. At the Light Groups page click on the button New Light Group at the top of the Light Group list. Then type a name for the new Light group and save it by clicking at the OK button. This will open a new page for this Light Group. A useful way to name your Light Groups is by their location or any other way that makes it easy for you to identify them later on.

### helioTIP!

When setting up a new group of lights in a large facility, we recommend that you start by only powering the lights that should be included in that group, complete the grouping setup, then power on the next section of lights and repeat the process. This gives you a good overview and make sure no lights are missed in the process!

## 6.3.2 Add and Remove Lights from a Light Group

Access Light Group page by selecting System and then Groups from the main menu. Click at the name of a Light Group you would like to add or remove lights from. If the Light Group you wish to edit is already assigned to a Grow Zone you can also select this Grow Zone and then click name of the Light Group at the Grow Zone page.



Click the Edit Group button at the top right of the individual Light Group page. Click at this and then select Add Lights or Remove Lights option from the dropdown menu, depending on what you wish to do. Select all the lights in this list that you want to add to or remove from this Light Group and click the Save button.

If there are no lights in your list, it is either because they have not been added to helioCORE, which can easily be remedied by following the steps in the Connecting your lights to the system section, or it is because all your lights are already in groups.

### 6.3.3 Blinking All the Lights in a Light Group

Click on the Find Lights button on the Grow Zone page and all of the lights in that group will blink on and off. This function will help you to identify all the lights assigned to the group.

### 6.3.4 Deleting a Light Group

Click on the Edit Group button at the top left of the specific Light Group page and chose Delete Group from drop-down menu. Once deleted a group cannot be recovered, it must be manually created again.

## 6.4 Controlling Your Lights

helioCORE offers market leading control to steer your lights with three different control functions - **Schedule, DLI and On Target**. What functions you can use depends on if you have chosen to install the sensor hub and sensors.

The **On Target and DLI controllers** helps automate the light using sensors to control the light output based on the amount of natural light entering the growth area. DLI and On Target therefore require installation of helioCORE Sensor Hub and light sensors.

Our **Schedule controller** is based on manually created strategy of settings of lights' output and do not require light sensors. Here you can control both the intensity and quality of light depending on the type of lights installed. It will be described in this section.

### 6.4.1 Creating a Daily Lights Schedule

Creating a strategy for a daily schedule allows you to control the lights' output and program the time when the lights switch on and off. It is subsequently used to create lighting Strategies.

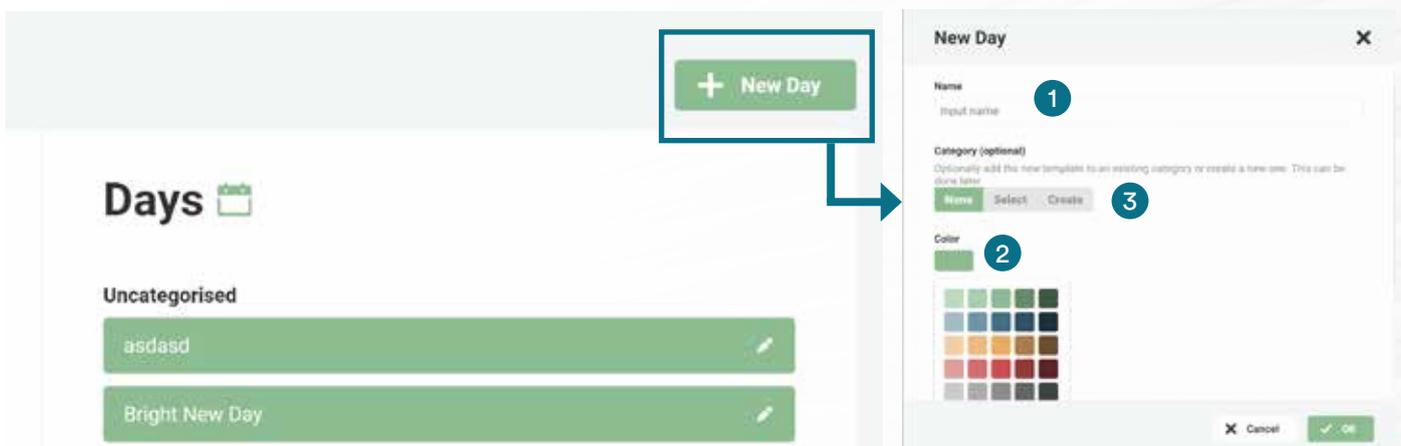
From the helioCORE main menu choose **System > Strategies** option.

On the Strategies page you click on Days button located at the top of the page. A new window divided into two sections, Uncategorized and Categorized Days (daily schedules), will open.

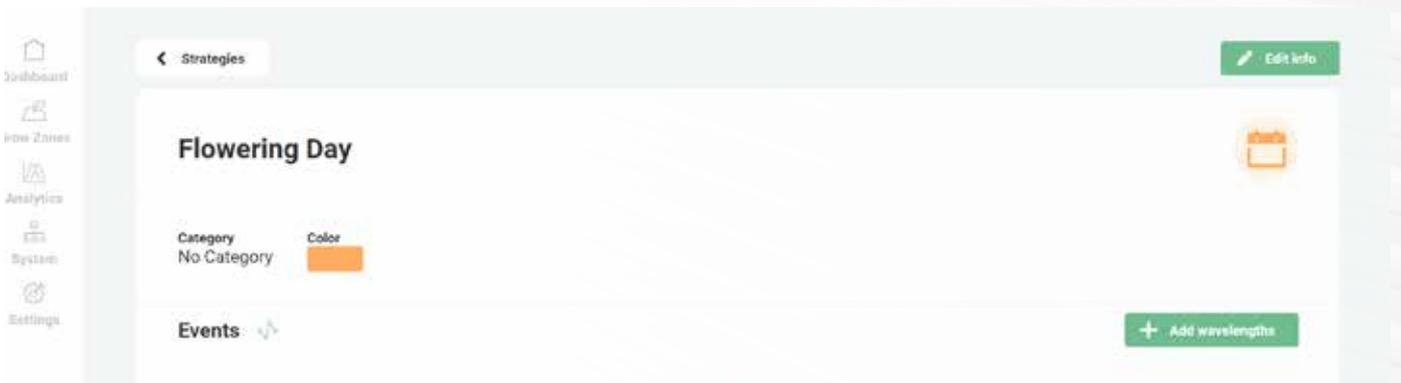


The Daily Schedule contains the scheduled settings (events) for one calendar day. The day is counted from midnight to midnight.

To create a new Daily Schedule, click on the button New Day at the top of the Daily Schedule list. Then type a name (1) for the new Day (daily schedule) and choose a color (2) for marking it. It will help you to easily distinguish and select the right Day when creating lighting Strategies for your crop.



Optionally, you can create or chose an existing category (3) for your new Day (Daily Schedule). A category can be for example the name of the crop or a purpose for which you are using several schedules. Using categories is recommended when you are going to create many Daily Schedules, to make it easier to find each Schedule. Save it by clicking at the OK button. This will open a new page for Light Group.



An event is each instance of changing light intensity or quality, as well as switching off the lights. Light intensity of separate wavelength/LED channels is programed by choosing numbers from 0 to 1000 which represent permilles (‰) of total current used by this LED channel. Between 200 and 900 it is fairly linearly related to light intensity.

**! N.B.** Note that the different colored LEDs can have different intensity output despite of having the same value set. In addition to this, their light output ratio depends on the model being used and the intensity can change also with the age of the fixture. Therefore, we always recommend using spectrometer when your light settings require precision.



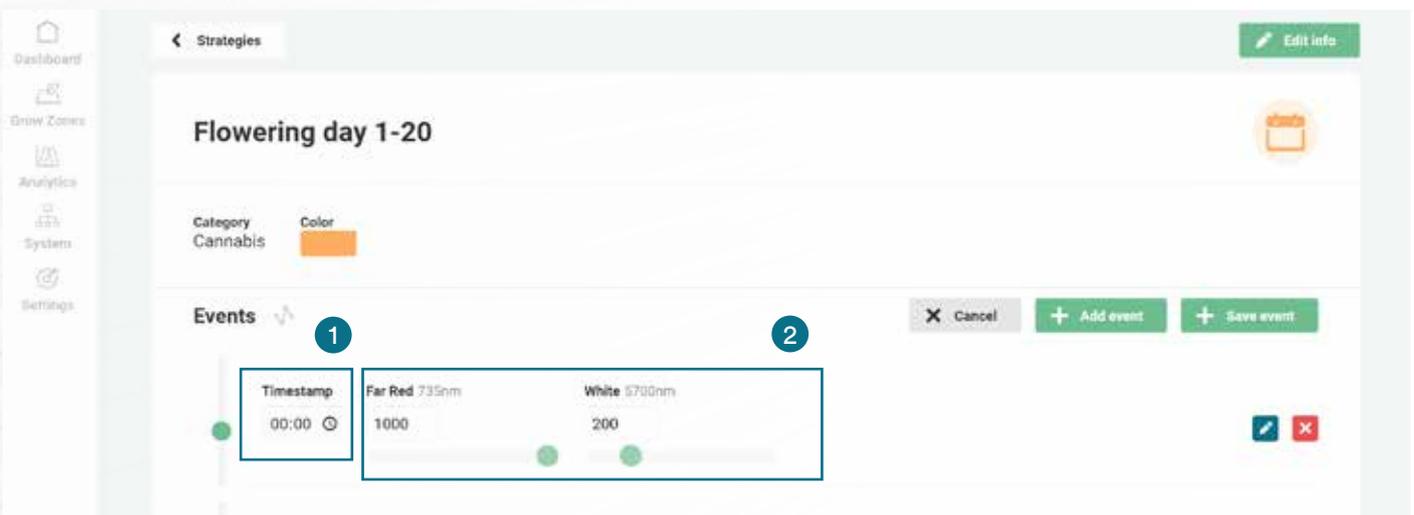
At the New Day click add Wavelength.

From the list chose those present in your lamp model. You can omit the wavelength you are not going to use, for example, when you plan monochromatic light treatment.

Save it by clicking at the OK button.

Now press **Add Event** to start adding your first sequence.

**! N.B.** If you have a selection of fixture models, you will see a slider for each wavelength available across all of the models you have attached to helioCORE™. For example, if you have one DYNA and a hundred ELIXIA models, you will still always see nine wavelengths, even though the majority of your lights are ELIXIA, which have three or four wavelength/LED channels. The DYNA has nine. Choosing wavelength will create the first event starting at 00.00. Click Edit event button to change the settings.



At the first section you need to enter the time that you want your first event to begin. Each event can be set to the minute and must last for a minimum of a minute.

Once you have set the start time for this event, set the intensities of each of the wavelength that you want to use during this event. Move the sliders up and down to change the intensity, when you do this you will see the number next to it change, this number is the electric current intensity of that specific wavelength in increments of 100 where 0 is off and 1000 is the maximum. To use a more specific value, type directly into the text field beside the sliders.

Once you have set the settings, click the green Save event button. You can also add more events by clicking Add event button. Repeat these steps to create the rest of the events for this Daily schedule. To switch off the lights, create an event with all wavelength' settings set to 0.

This is an example of a simple schedule for photoperiod lasting from 06:00 to 02:00. Note that it has to start at midnight. Then the lights will be off until 6AM when they will be turned to 100%, then off for sunny hours between 09:00 and 18:00, when they will be back on to 100% until the end of the day (midnight).

Time	Blue	Red	Far Red	White
00:00	1000	1000	1000	1000
02:00	0	0	0	0
06:00	1000	1000	1000	1000
09:00	0	0	0	0
18:00	1000	1000	1000	1000

**!** Once you have completed your set up, **make sure that you click on the Save event button, or all the settings you have added will be lost.**

## 6.4.2 Daylight Savings

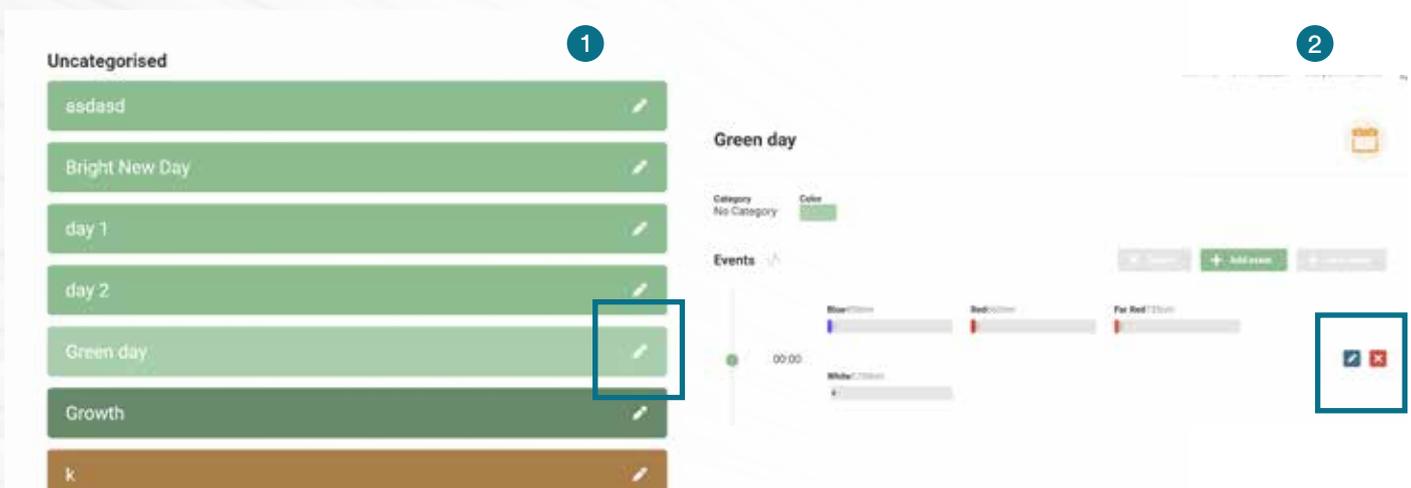
You need to be aware that helioCORE automatically adjusts for daylight savings.

Be aware, on the day of the clock change, the Daily Schedule will lose an hour if the clocks are moving forward and gain an extra hour if the clocks are moving backwards. If you have scheduled an Event in one of your Days (Daily schedules) to begin or end at the same hour that the clocks change, that event will occur twice if the clock moves backward. If the clocks moving forward, your event will be skipped as that time will not occur that day.

## 6.4.3 Editing Daily Light Schedule

To edit a Daily schedule, choose **System > Strategies** option from the main menu.

From the Daily schedule list, identify the Daily schedule that you want to edit. Remember that if you used categories your template will be listed underneath this category so you will need to click on the category to see your Daily schedule. Click at the name of Daily schedule you wish to edit. To change the name, color marker or category, click at the Edit info button at the top pf the page.



To edit light settings, click at the Edit event button. Then click at the pen icon by the event you wish to edit and type a new value(s) for light settings. You can also remove events by clicking at delete icon or add a new event(s). Once you have introduced changes, click the Save event button.

## 6.4.4 Creating Lighting Strategies

Lighting strategy is a sequence of daily lighting schedules you want to apply for your crop. All the days during the growth period can be same, or you can use different Daily schedules to create a unique strategy with, for example, varying photoperiod and/or light quality during different stages of your crop cultivation. You can create end of production treatments or control the speed of your crop development by changing the light intensity.

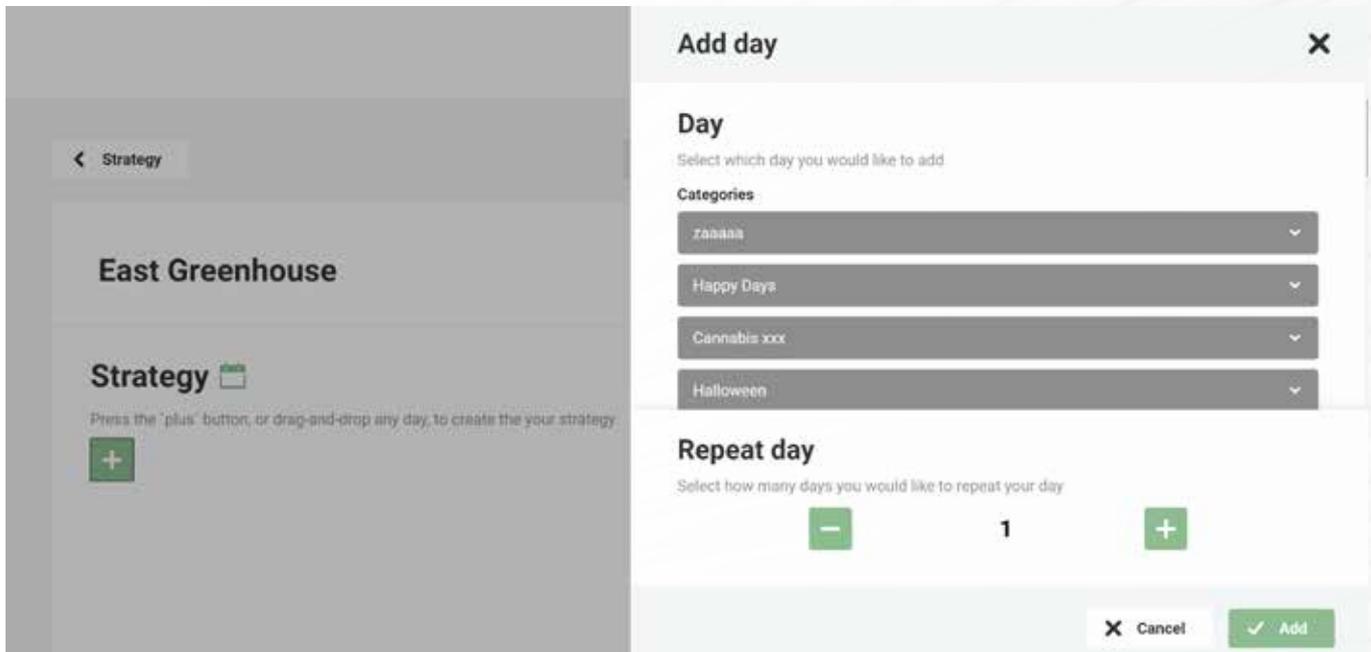
To create a new Strategy, choose **System > Strategies** option from the helioCORE main menu. Here you will see add New Strategy button.



Click on this to create a new Schedule. Chose a name which will describe your strategy and click OK to save it.

You will then be taken to the page for that Schedule. Click Edit Strategy from the Actions button dropdown menu at the top of the page.

Click on a "plus" button and then select the Day (Daily schedule from the list on a pop-up window You can also drag-and-drop any Day (Daily schedule) from the list.



Select a Day (Daily schedule from the list you can choose the number of consecutive days you want this Day (Daily schedule) to be active for. Then click on Add button.

Keep adding selected Days (Daily schedules) either by dragging them or by pressing plus button, until you have added all Days required to illuminate your plants during the growth period.

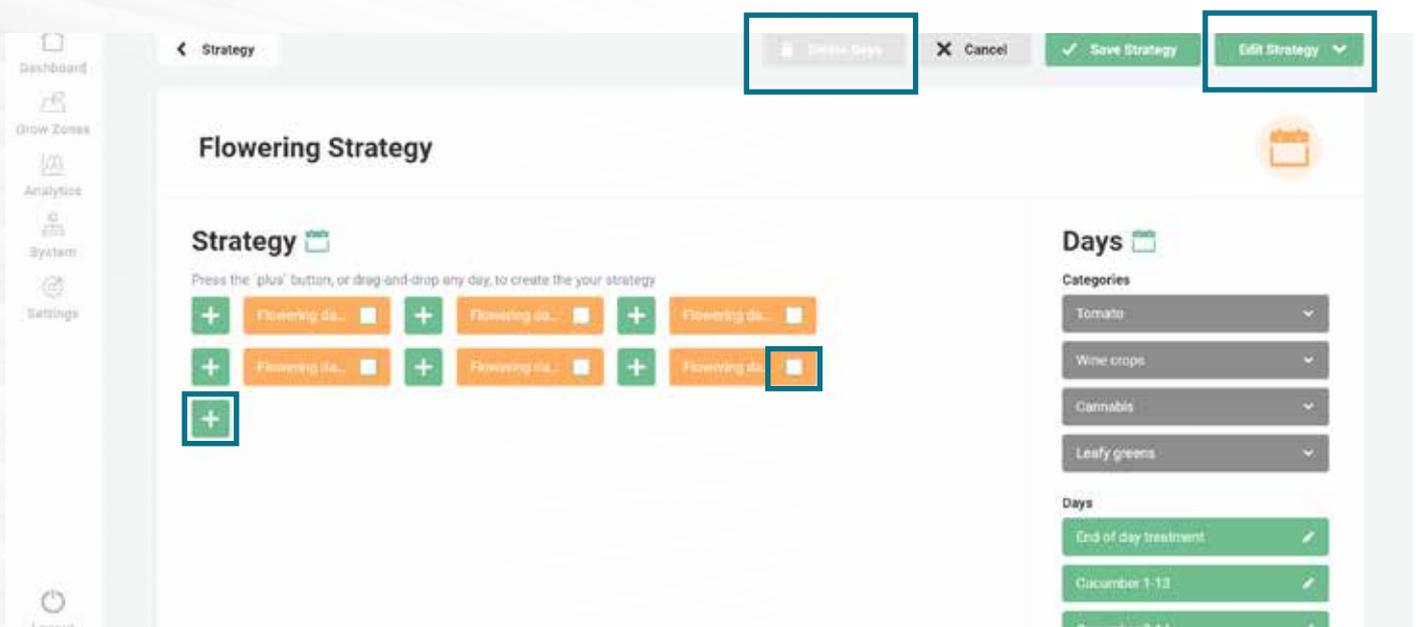


You can add Days in-between already created sequence, by clicking “plus” between them.

Click Save Strategy from the Actions button dropdown menu to save your sequence template. To do that you click on the day on which you want this schedule to begin. A pop-up window will show you all your Day Templates and, at the bottom, the Sequence Templates that you have set up. Click on one of the Day Templates and it will be added to the calendar on that day. Continue to click and add Day Templates for each day in this Schedule. If you want a Day Template to run across consecutive days you can enter the number of consecutive days, when you select the Day Template, and they will all be added to the calendar at once. If you select a Sequence Template, all the days that you added to that Sequence Template will automatically add to the calendar, in that order.

## 6.4.5 Editing Lighting Strategies

To edit lighting Strategy, choose **System > Strategies** option from the helioCORE main menu. From the lighting Strategies list identify the Strategy that you want to edit. If the strategy you wish to edit is already assigned to a Grow Zone you can also select this Grow Zone and then click name of the Strategy at the Grow Zone page. Click at the name of Strategy you wish to edit. To change the name or delete Strategy click at the Edit Strategy from the Actions button dropdown menu at the top of the page.



To change Daily Schedules in your strategy, click at the Edit strategy button. You can remove Daily Schedules from the Strategy by ticking unwanted ones and then clicking at Delete Day button.

To add new Daily Schedules, click the “plus” button or drag-and-drop any Day (Daily schedule) from the list at the right section. Clicking “plus” gives you and possibility to choose how many times i.e. for how many days, selected Day (Daily schedule) is going to be repeated. Once you have introduced changes, click the Save strategy button at the top of the page.

# 7. Sensors

To use Heliospectra's DLI and On Target smart controllers, you will need to install the Sensor Hub and PAR sensors. You find all the sensor settings under Active / Inactive Sensors section from the Dashboard.

**! N.B.** This section will only be visible to you if you have installed the sensor hub and sensors.

## 7.1 Adding New Sensors

To add a Sensor, go to the Sensors section, click the Manage Sensor Ports and you will see a list of all sensor ports.



Beside each Sensor it will say Enabled or Disabled with a down arrow. Click on the down arrow beside the port that the sensor you want to set up is attached to, sensor ports are numbered from top down. The details for that Sensor will drop down. In the Display Name field enter a name for your Sensor. It is recommended to use the location as a name here so it can easily be identified.

Below that enter the calibration factor, which can be found on the certificate that arrived with the sensor (a three-digit number followed by one or two decimal places).

Once you have added a name and the calibration factor you need to select the Enable Sensor box to turn the sensor on. Once you have done this you need to click the save icon.

At any point you can edit these sensor details by opening up the details that sensor, as you did when you set it up, make the required change and save your changes.

To close this sensor set up window click the exit icon.

## 7.2 Monitoring Sensors

Return to the Sensor section on the Hardware page. If you click on the name of the sensor you want to monitor, you will see a full-page view of the sensor measurements.



Real time sensor measurements are displayed in the graph. Move your cursor, or finger (if using a touchscreen device), over the graph line to see specific values.

To see readings for a different date displayed on the graph click on the date field above the graph. When you click on it a calendar will appear, from that you can select the specific date that you want to view.

You can also use the forward and back arrows to move one day at a time.

Click on the download button to download the sensor data in CSV format, once you click on the download icon you can select the start and end date and the aggregation level and then download.

## 7.3 Deleting Sensors

You will only need to do this if you get a replacement IO module, you will then have to re-add the sensors with the new sensor ports and delete the old ones. **Unless you have a new IO module or have been specifically requested to by Heliospectra support, please do not delete any sensors.**

To delete a sensor you must go to the Sensors section of the Hardware page and click on the **Sensor Settings** button. You will see the list of all of your helioCORE sensor ports. Open the one that you want to delete by clicking on the down arrow beside it. When you have done this you will see a Delete Sensor button, you can click on this and you will be asked to confirm.

## 8. Smart Controllers

You will only have access to the Smart Control functions of the DLI or On Target controllers if you have installed the sensor HUB and sensors.

**DLI Controller:** The DLI Controller sets Daily Light Integral (DLI) targets in your smart greenhouse, allowing sensors to ensure a consistent DLI throughout the year independent of weather. The results is optimal plant growth, energy efficiency and cost control as the system helps prioritize lamp use at times of day when energy and utility costs are lowest.

**On Target (Intensity) Controller:** The On Target Controller establish constant Photosynthetic Photon Flux Density (PPFD) levels to maximize plant efficiency and photosynthesis with dynamic response to seasonal changes in weather and natural light.

In the helioCORE main menu if you click on System you will find the Smart Control options under Light Strategies. The light strategies section are divided into two sections Days and Strategies. The Days section is a strategy set during 24h timespan. Strategies are longer term and build up of a repeated Days strategy or multiple different ones.



# 8.1 DLI

Daily Light Integral (DLI), refers to the number of photons within Photosynthetically Active region (PAR), received by plants during one day. The DLI controller aims to add just enough lamp light to supplement the available sunlight to reach the DLI target set which you want for your crop.

The DLI controller predicts how much sunlight there will be during the course of each day and automatically adds the supplemental lamp light required to consistently match your DLI target. It can also take into account electricity prices to prioritize lamp use at times when electricity prices are lower.

## 8.1.1 Electricity Cost Settings

In the helioCORE main menu go to Settings and then System Settings. Here you find a graph of the electricity prices through a 24 hour day span. Click Edit Electricity Prices and a grid will appear where you can enter the price of your electricity per hour for each hour of the day. Make sure you enter a value for every hour.

**Electricity Price**

The electricity price is used by the DLI strategy. The prices are unitless.

00:00:00	01:00:00	02:00:00	03:00:00
<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>
04:00:00	05:00:00	06:00:00	07:00:00
<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>
08:00:00	09:00:00	10:00:00	11:00:00
<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>
12:00:00	13:00:00	14:00:00	15:00:00
<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>
16:00:00	17:00:00	18:00:00	19:00:00
<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="1"/>

Click on the save button to confirm your settings.

## 8.1.2 Creating a New DLI Target

To create a new DLI target you have to access the Strategies page. To get here you go to the Systems page of you helioCORE menu and then select the Days button in the upper right corner.

Creating a strategy for a daily schedule allows you to control the lights' output and program the time when the lights switch on and off. It is subsequently used to create lighting Strategies.

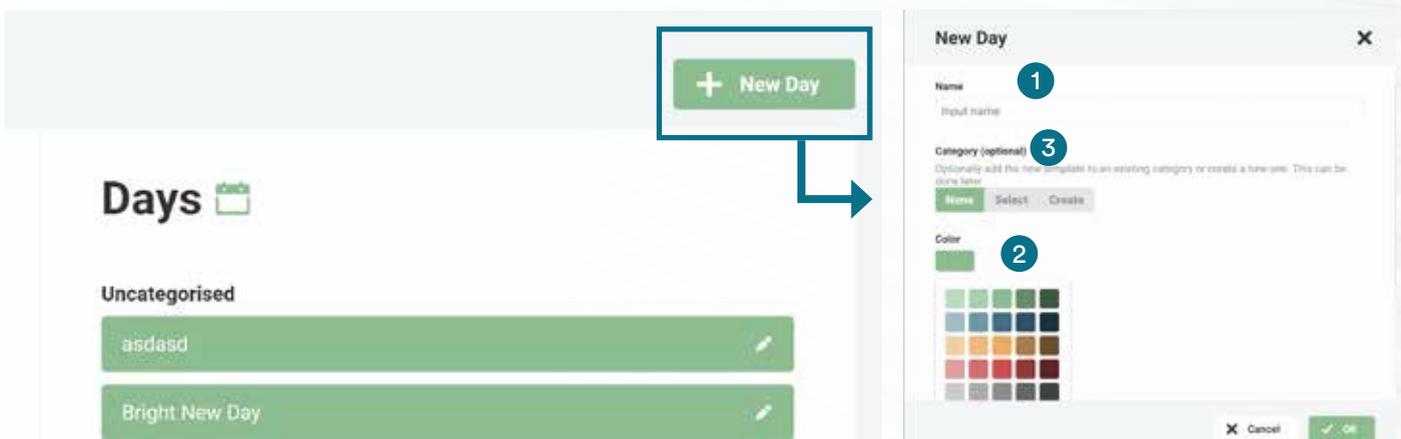
From the helioCORE main menu choose **System > Strategies** option.

On the Strategies page you click on Days button located at the top of the page. A new window divided into two sections, Uncategorized and Categorized Days (daily schedules), will open.



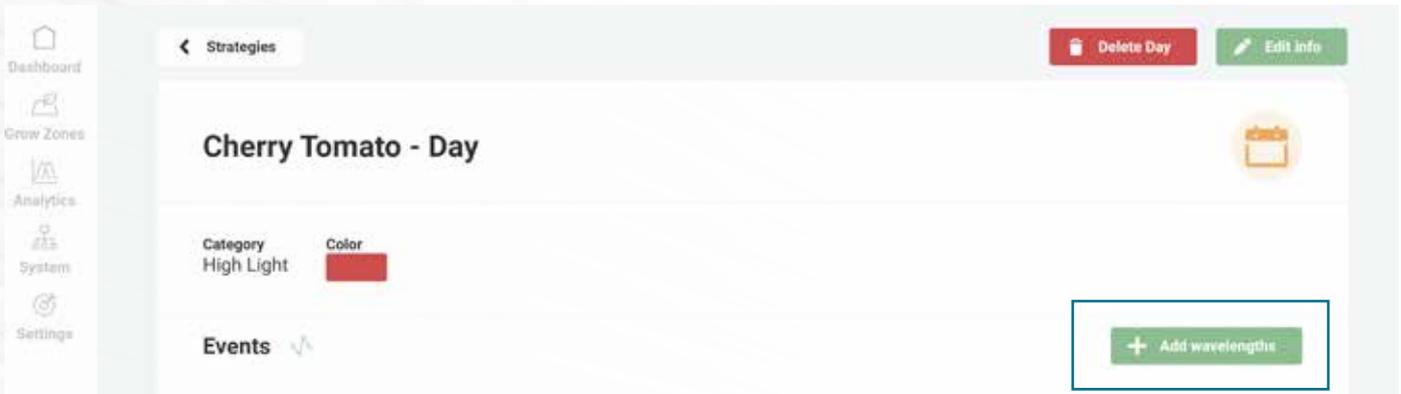
The Daily Schedule contains the scheduled settings (events) for one calendar day. The day is counted from midnight to midnight.

To create a new Daily Schedule, click on the button New Day at the top of the Daily Schedule list. Then type a name (1) for the new Day (daily schedule) and choose a color (2) for marking it. It will help you to easily distinguish and select the right Day when creating lighting Strategies for your crop.



Optionally, you can create or chose an existing category (3) for your new Day (Daily Schedule). A category can be for example the name of the crop or a purpose for which you are using several schedules. Using categories is recommended when you are going to create many Daily Schedules, to make it easier to find each Schedule. Save it by clicking at the OK button.

This will open a new page for the Daily Schedule. Here you can add events and controller functions.



Start by going to the Add Wavelengths page under event.

An event is each instance of changing light intensity or quality, as well as switching off the lights. Light intensity of separate wavelength/LED channels is programmed by choosing numbers from 0 to 1000 which represent permilles (‰) of total current used by this LED channel. Between 200 and 900 it is fairly linearly related to light intensity.

Once the wavelengths are confirmed, you have access to adding the **smart controller events**.



Scroll down to the **Controller Events** section and press the **Add DLI Event** button. This section is where you set your Daily Light Integral (DLI) target by adding the below details:

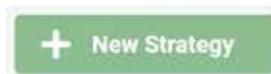
- **Start time** - The time your photo period should begin
  - **End time** - The time your photo period should end. Each controller must sit within one calendar day (0:00-0:00), it cannot cross midnight
  - **Targeted DLI goal** - This is the amount you want to reach in one day in mol/m<sup>2</sup>/day
  - **Min PPFD** - This is the minimum light in μmol/m<sup>2</sup>/s that the plants will get during your photo period. The default is 0 if it is left blank.
  - **Max PPFD** - This is the maximum light in μmol/m<sup>2</sup>/s the plants should ever be exposed to during the photo period you have set.
  - Desired spectrum and intensity (if using the ELIXIA).
- Once added press save event.

## 8.1.3 Create a DLI Light Strategy

Once you have created a DLI target and a Day Event you need to set your light strategy. Go to **Systems > Light Strategies** and press **+ New Strategy**.

A lighting strategy is a sequence of daily lighting schedules you want to apply for your crop. All the days during the growth period can be same, or you can use different Daily schedules to create a unique strategy each day. When creating a DLI strategy your main goal is would be the first option as you want to create a consistent light target throughout your growth period.

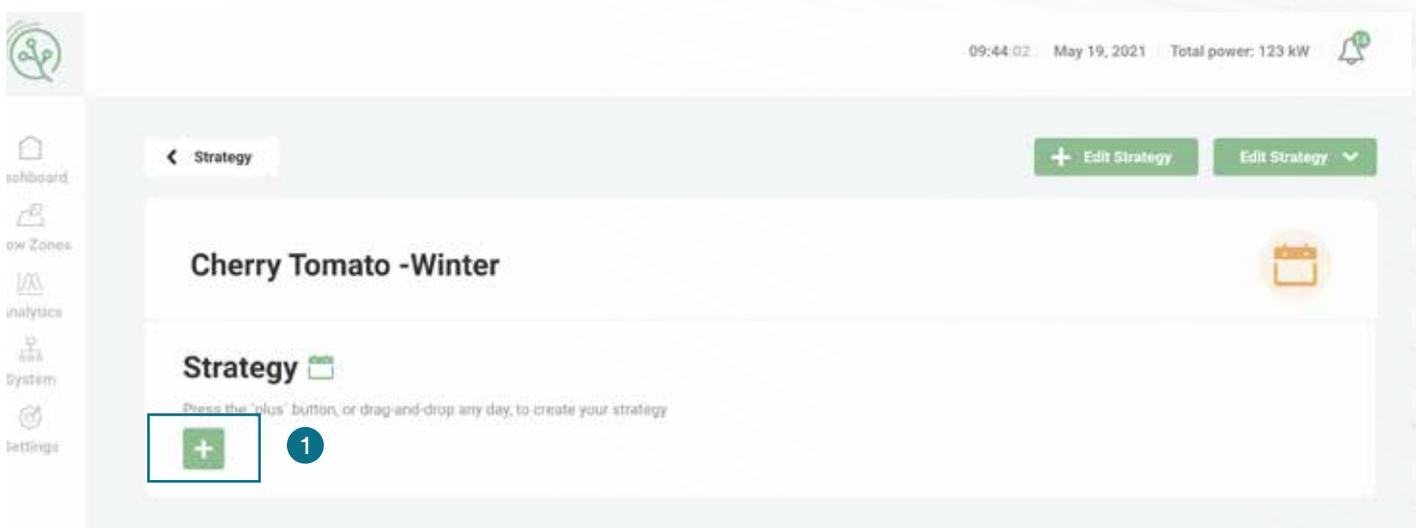
To create a new strategy, choose System and then Strategies option from the helioCORE main menu. Here you will see add New Strategy button.

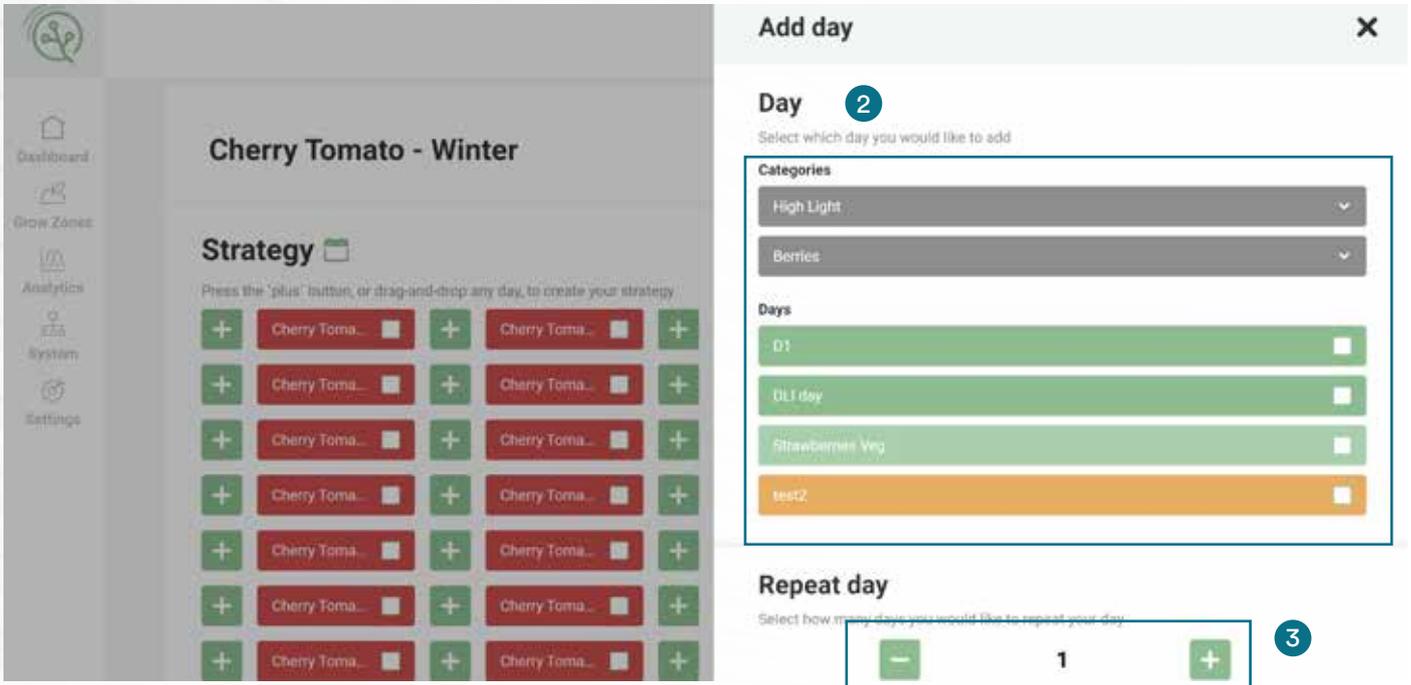


Click on this to create a new Schedule. Chose a name which will describe your strategy and click OK to save it.

You will then be taken to the page for that Schedule. Click Edit Strategy from the Actions button dropdown menu at the top of the page.

- 1 Click on a “plus” button and then select the Day (Daily schedule from the list on a pop-up window You can also drag-and-drop any Day (Daily schedule) from the list.





2 Select a Daily schedule from the list, 3 for a consistent DLI throughout the growth cycle choose the number of consecutive days of your growth period. Then click on Add button.

You can also keep adding selected Days (Daily schedules) either by dragging them or by pressing plus button, until you have added all Days required to illuminate your plants during the growth period.

You can add Days in-between already created sequence, by clicking “plus” between them.

To delete a Day in the sequence template, click on the days you want to delete (check the box) and press the red Delete Days button.



Click Save Strategy in the upper right corner to save your sequence template.

Your DLI strategy will continue to show as “Inactive” until it has been provided a Grow Zone. For how to set your Grow Zone please refer to chapter 9 in this manual.

Name	Status
Cherry Tomato - Winter	Inactive

## 8.1.4 Calibration

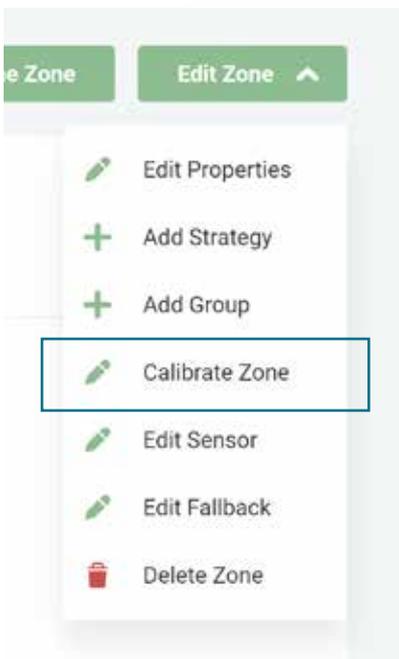
Calibration is an important part of creating the DLI controller. Once you have created the controller it will automatically calibrate as soon as it enters the photo period or straight away if you are within the photo period when you create it.

The calibration needs to happen in a dark environment, so in the evening or early in the morning. As it happens automatically, there is a risk it happens in day light and the sensor will be registering sun light as well as the light from the lamps. You can check that it has calibrated correctly by checking the calibration graph once the controller photo period has begun and so the automatic calibration has occurred.

To access this graph go to **Systems > Sensors** and choose the sensor you are calibrating or go to your dedicated **Grow Zone** and choose the sensor.

That will alter the page you see, you will see a graph that looks like the following. If it has calibrated correctly you will see a steep curve between 1 and 100 with a more shallow curve from 100 to 1000.

If you see something different on your graph then you will need to re-calibrate. To ensure that the re-calibration is successful you will need to wait until it is dark so evening or early morning and then re-calibrate.



**To re-calibrate go to the Grow Zone page and choose Edit Zone.**

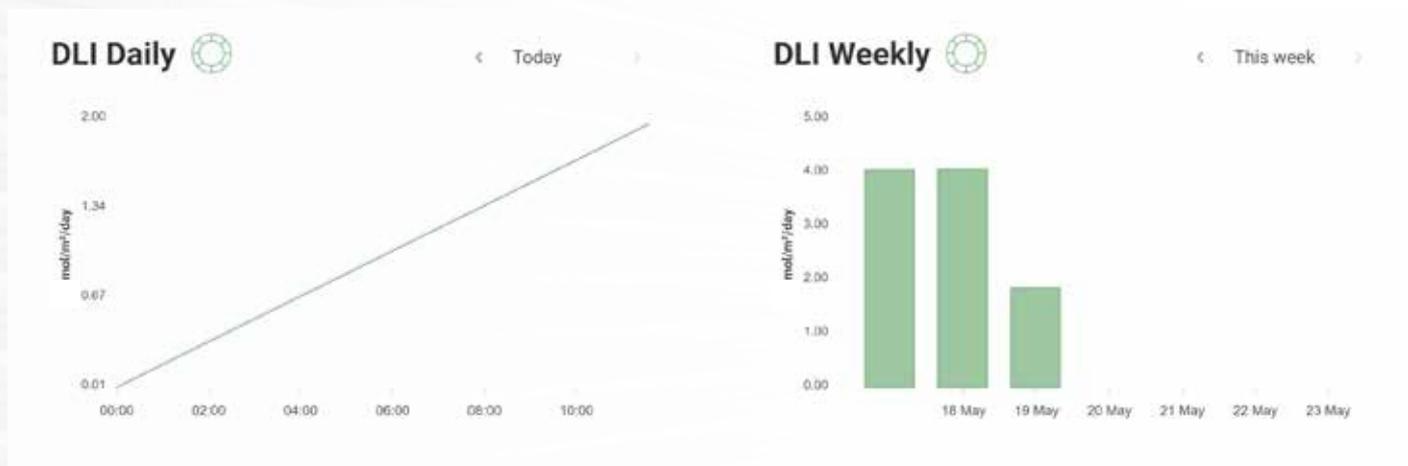
This will show you the graph again, above the graph you will see a re-calibrate button. Click that and the lights and sensors will re-calibrate. When recalibrating you will see the lights switch off then come on at 100 then switch off and come back on at 1000. Once they have stopped blinking you can re-check the graph and you should have a curve closer to the one in this example.

## 8.1.5 Monitoring your DLI controller

To monitor your DLI controller go to **Grow Zones** in the helioCORE main menu and choose your dedicated Grow Zone.

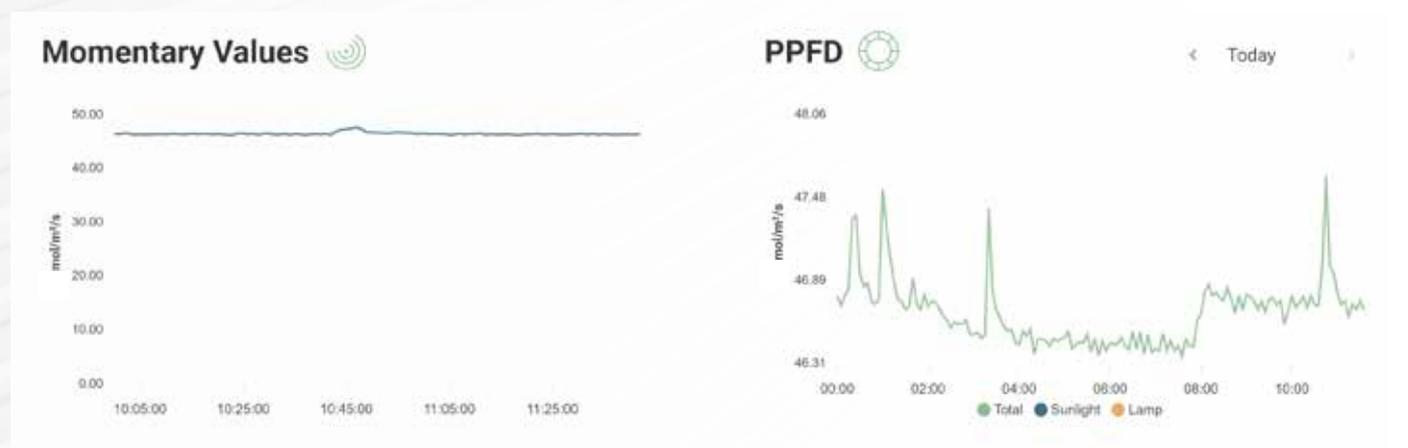
On this page you will see the spectrum chosen, as well as five graphs monitoring the success of your grow zone and the controller: 1. total power consumption during the day, 2. accumulated DLI throughout the day, 3. DLI consumption per day per week, 4. the momentary intensity value, and 5. PPFD output.

Above all of these graphs is a date field which you can use to change the date for which data is displayed on the graphs.



Four of the graphs are dedicated to the Smart Controllers and will only be visible if sensors are installed. The **DLI Daily** graph shows the accumulated light in the photo period for the date that you have selected. It is expressed in mol/m<sup>2</sup> over a 24 hour period. By hovering over the graph you will be able to see the DLI value accumulated at that time of the day.

The second DLI graph is titled **DLI Weekly** and shows the total DLI per day, for the day you have selected to view data for, and for the current calendar week. It is expressed in mol/m<sup>2</sup> per day.



The third graph is titled **Momentary Values** and shows the estimated light coming from the lamps and the sun (in  $\mu\text{mol}/\text{m}^2/\text{s}$ ). The data is shown in 5 minute intervals for the date that you have selected.

The fourth and last smart controller graph is the **PPFD Graph** showing the light output in  $\mu\text{mol}/\text{m}^2/\text{s}$  at a specific moment through the day. The output is visualized as total PPFD output (sunlight and lamps), total PPFD added by sunlight and PPFD supplemented by lamp use.

At the top of the page you will see the download icon. Clicking this will download a CSV file containing the history of this DLI controller.

## 8.1.6 Starting and Pausing your DLI controller

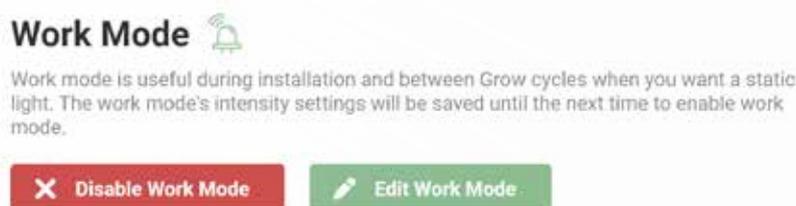
When you have created the DLI target and Grow Zone it will automatically be active and so begin as soon as the photo period begins, or right away if you have created it at a time within the photo period.

If you need to pause it for any reason you can do so by clicking on the Pause Zone icon on the Grow Zone page. An indicator will then show the zone as inactive. This means that you can see at a glance if your grow zone is paused or not.

To restart you can re-open the Grow Zone and click on the Resume Zone icon.

If you only want to pause your Grow Zone and DLI controller for a short time, eg for work in the growth area you are instead able to use the Work Mode. A specific spectrum and intensity can be chosen for this.

Work mode is useful during installation and between grow cycles when you want a static light or light color.



## 8.1.7 Editing your DLI target

To edit your DLI target then you need to edit your Daily Event schedule. Go to **Systems > Strategies** page and choose **Days**. Click on the edit icon on the Daily Schedule you would like to edit.

To edit the name of the Day schedule, color or category click the Edit Info button in the upper corner.

To edit your DLI target data, click Edit Event, here you can change the following:

- Start time
- End time
- Targeted DLI goal in mol/m<sup>2</sup>/day
- Min PPFD
- Max PPFD
- Spectrum and Intensity

Once you have made your changes you need to click on the save icon to save.

If you are looking to edit other settings related to your dedicated grow area these can be edited under Grow Zones. Here you can change sensor, edit light group, edit fallback settings and change the chosen lighting strategy. Editing the strategy itself is, as described above, done in the Days event settings.

**!** N.B. When changing group or sensor, the sensor must be re-calibrated, refer to the calibration section for details of how to do this.

## 8.2 On Target Controller

The On Target controller aims at ensuring that the plants consistently receive constant light intensity i.e. targeted PPFD level, that you set for a chosen photoperiod. Advantage of this controller is that it increases plants growth by reducing stress caused by temporal light level fluctuations as well as assure consistent day on day growth.

On Target controller manage this by monitoring the sun light intensity being picked up by the PAR sensor and then adding only what is required to supplement feel up for missing sunlight, to ensure that the plants are being provided with the target PPFD for the whole photoperiod. This means that the lamps will dim and brighten and even switch off as required and your plants will consistently receive the PPFD that you have set.

### 8.2.1 Creating a new On Target Event

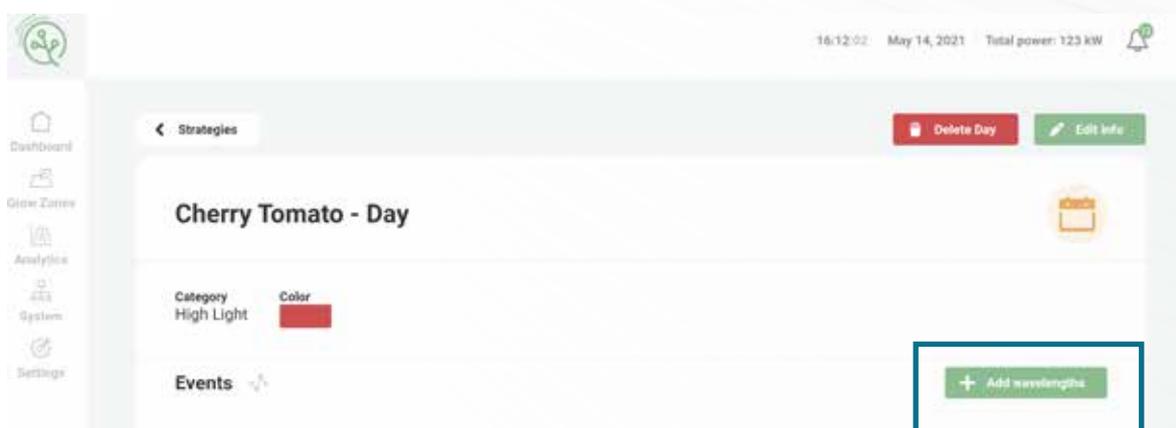
To create the new On Target controller you again need to start by creating a new Day schedule.

Click on the button New Day at the top of the Daily Schedule list. Then type a name for the new Day (daily schedule) and choose a color for marking it. It will help you to easily distinguish and select the right Day when creating lighting Strategies for your crop. Finally you can create or chose an existing category for your new Day (Daily Schedule).

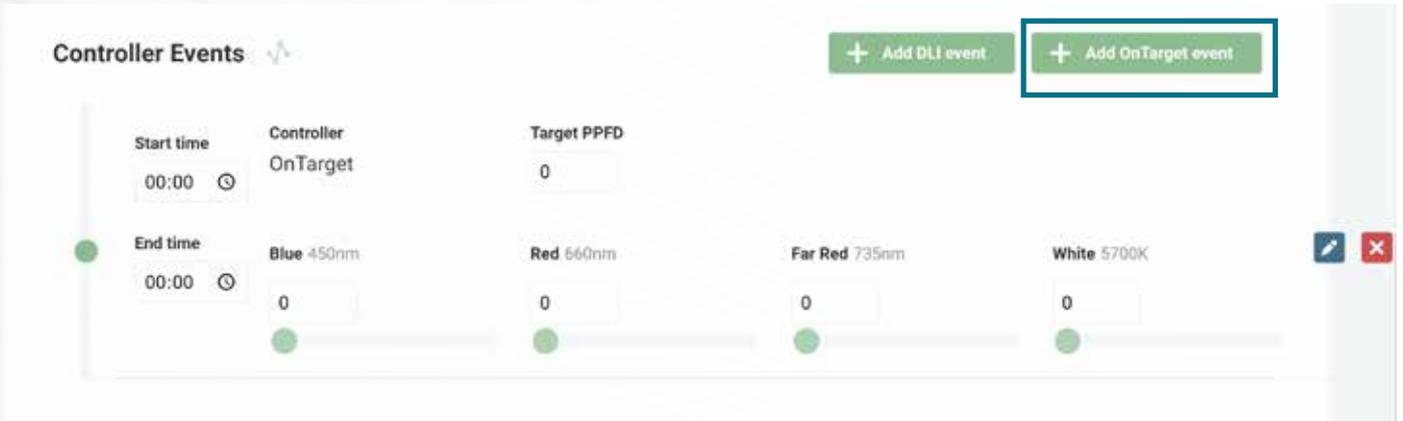
A category can be for example the name of the crop or a purpose for which you are using several schedules. Using categories is recommended when you are going to create many Daily Schedules, to make it easier to find each Schedule. Save it by clicking at the OK button.

This will open a new page for the Daily Schedule. Here you can add events and controller fuctions.

Start by going to the **Add Wavelengths** page under event and confirm the wavelengths used.



Once the wavelengths are confirmed, you have access to adding the smart controller events. Scroll down to the Controller Events section and press the Add On Target Event button.



The screenshot shows the 'Controller Events' section of a software interface. At the top right, there are two green buttons: '+ Add DLI event' and '+ Add OnTarget event'. The '+ Add OnTarget event' button is highlighted with a red rectangular box. Below the buttons, there is a form with several fields and sliders. The 'Start time' field is set to '00:00' with a clock icon. The 'End time' field is also set to '00:00' with a clock icon. The 'Controller' dropdown menu is set to 'OnTarget'. The 'Target PPFD' field is set to '0'. Below these fields, there are four sliders for different light spectra: 'Blue 450nm', 'Red 660nm', 'Far Red 735nm', and 'White 5700K'. Each slider has a green circular marker and a numerical value of '0' displayed above it. On the right side of the form, there are two small icons: a blue pencil icon and a red 'X' icon.

This section is where you set your on Target goals by adding the below details:

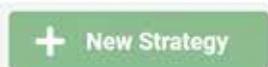
- **Start time** - The time your photo period should begin.
- **End time** - The time your photo period should end. Each controller must sit within one calendar day (0:00-0:00), it cannot cross midnight
- **Target PPFD** - This is the light intensity target in  $\mu\text{mol}/\text{m}^2/\text{s}$  that the plants will receive each day during your photo period. The default is 0 if it is left blank.
- **Desired spectrum and intensity**

Once added press save event

## 8.2.2 Creating an On Target Light Strategy

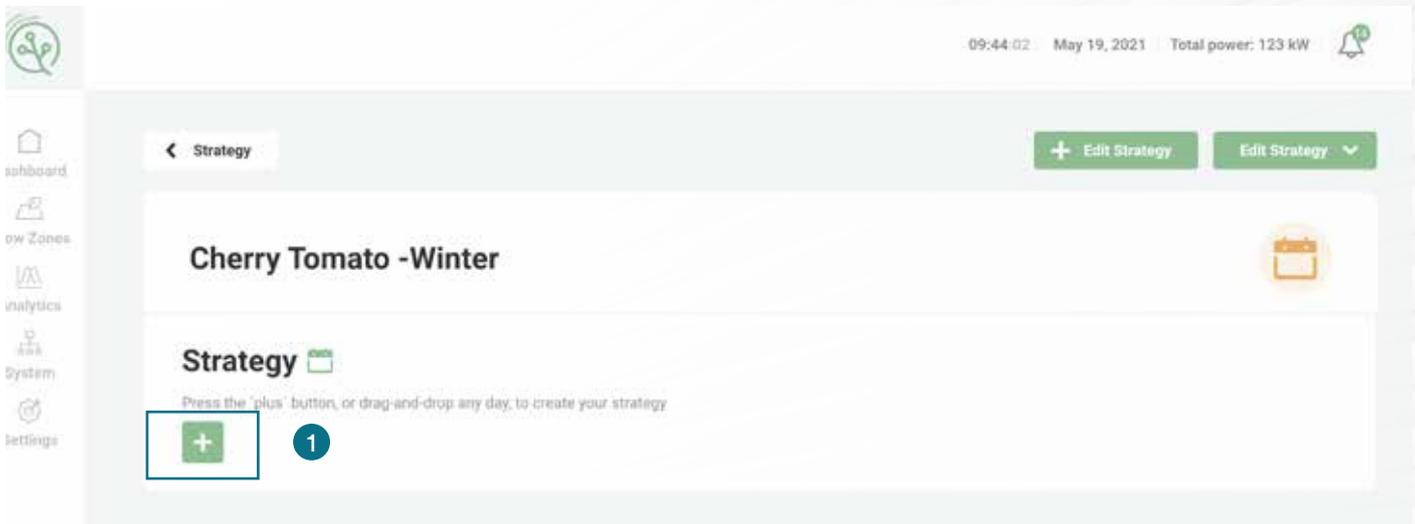
A lighting strategy is a sequence of daily lighting schedules you want to apply for your crop. When creating an On Target light strategy your main goal is to provide a consistent light intensity for your crop throughout your growth period.

Once you have created a On Target controller event and saved your Day Event you need to create your light strategy. choose **System** and then **Strategies** option from the helioCORE main menu.

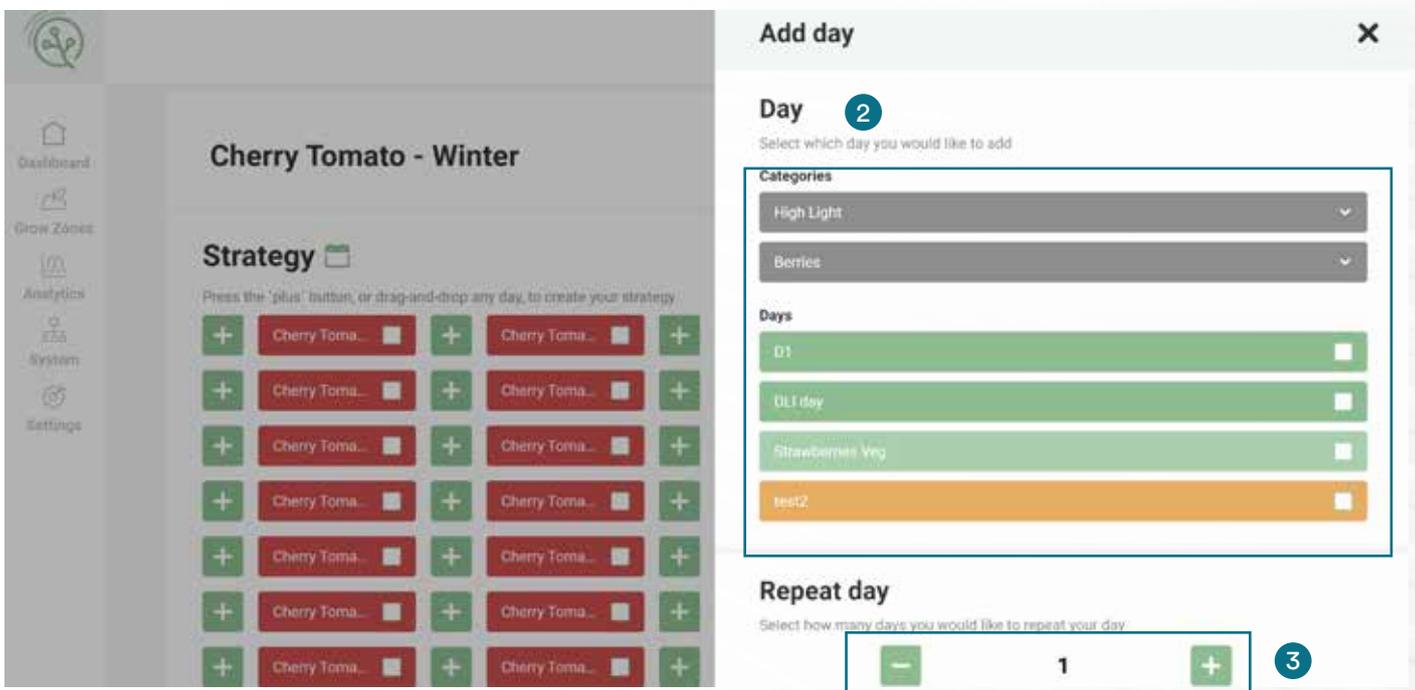


Here you will see add **New Strategy button**. Click on this to create a new Schedule. Chose a name which will describe your strategy and click OK to save it.

You will then be taken to the page for that Schedule. Click Edit Strategy from the Actions button dropdown menu at the top of the page.



**1** Click on a “plus” button and then select the Day (Daily schedule from the list on a pop-up window. You can also drag-and-drop any Day (Daily schedule) from the list.



**2** Select your Daily schedule containing the On Target event from the list. **3** For a consistent intensity target throughout the growth cycle, choose the number of consecutive days of your growth period.

Then click on Add button.

You can also keep adding selected Days (Daily schedules) either by dragging them from the Days menu to the right, or by pressing the plus button, until you have added all Days required to illuminate your plants during the growth period.

You can add Days in-between already created sequence, by clicking “plus” between them.

To delete a Day in the sequence template, click on the days you want to delete (check the box) and press the red Delete Days button.



Click Save Strategy in the upper right corner to save your sequence template.

Your On Target strategy will continue to show as “Inactive” until it has been provided a Grow Zone. For how to set your Grow Zone please refer to chapter 9 in this manual.

Name ^	Status
Cherry Tomato - Winter	Inactive

## 8.2.3 Calibration

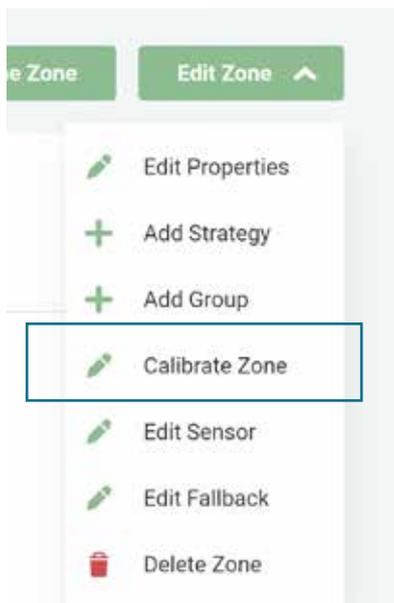
Calibration is an important part of creating the DLI controller. Once you have created the controller it will automatically calibrate as soon as it enters the photo period or straight away if you are within the photo period when you create it.

The calibration needs to happen in a dark environment, so in the evening or early in the morning. As it happens automatically, there is a risk it happens in day light and the sensor will be registering sun light as well as the light from the lamps. You can check that it has calibrated correctly by checking the calibration graph once the controller photo period has begun and so the automatic calibration has occurred.

To access this graph go to **Systems > Sensors** and choose the sensor you are calibrating or go to your dedicated **Grow Zone** and choose the sensor.

That will alter the page you see, you will see a graph that looks like the following. If it has calibrated correctly you will see a steep curve between 1 and 100 with a more shallow curve from 100 to 1000.

If you see something different on your graph then you will need to re-calibrate. To ensure that the re-calibration is successful you will need to wait until it is dark so evening or early morning and then re-calibrate.



**To re-calibrate go to the Grow Zone page and choose Edit Zone.**

This will show you the graph again, above the graph you will see a re-calibrate button. Click that and the lights and sensors will re-calibrate. When recalibrating you will see the lights switch off then come on at 100 then switch off and come back on at 1000. Once they have stopped blinking you can re-check the graph and you should have a curve closer to the one in this example.

## 8.2.4 Starting and Pausing an On Target controller

When you have created your On Target light strategy and connected it to a Grow Zone it will automatically be active and begin as soon as the photo period begins, or right away if you have created it at a time within the photo period.

If you need to pause it for any reason you can do so by clicking on the **Pause Zone** icon on the Grow Zone page. An indicator will then show the zone as inactive. This means that you can see at a glance if your grow zone is paused or not. To restart you can re-open the Grow Zone and click on the Resume Zone icon.

If you only want to pause your Grow Zone and On Target strategy for a short time, eg for work in the growth area you are instead able to use the **Work Mode**. A specific spectrum (if using the ELIXIA) and intensity can be chosen for this.

Work mode is useful during installation and between grow cycles when you want a static light or light color.

**!** N.B. The photo period set in your DLI Controller can be effected by daylight savings. You will only see the effect for the first photo period following the time change.

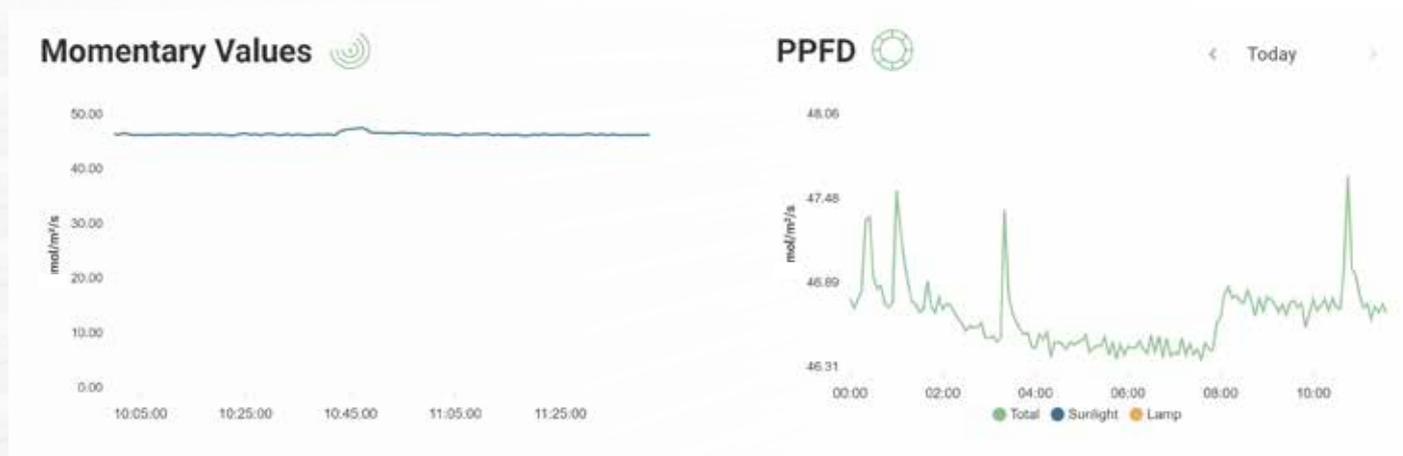
## 8.2.5 Monitoring your On Target controller

To monitor your On Target controller go to **Grow Zones** in the helioCORE main menu and choose your dedicated Grow Zone.

On this page you will see the light groups connected to your grow zone, the spectrum chosen, as well as graphs monitoring the success of the controller; 1. Total power consumption during the day, 2. the momentary intensity value, and 5. the PPFD output.

Graphs dedicated to the Smart Controllers will only be visible if sensors are installed.

Above all of these graphs is a date field which you can use to change the date for which data is displayed on the graphs. If you click on the date field a calendar will appear, from which you can select the date you want to see. Alternatively, you can use the forward and back arrows beside the date field to move forwards or backwards, one month at a time. If you select a past date then the live real-time graph will disappear, if you want to see it again select today's date in the date field.



The **Momentary Values** graph shows the estimated light coming from the lamps and the sun (in  $\mu\text{mol}/\text{m}^2/\text{s}$ ). The data is shown in 1 minute intervals for the date that you have selected. If you follow the line with your cursor you will see the output at that point in time.

The **PPFD Graph** shows the light output in  $\mu\text{mol}/\text{m}^2/\text{s}$  at a specific moment throughout the day. The output is visualized as total PPFD output (sunlight and lamps), the PPFD added by sunlight and PPFD supplemented by lamp use. If you follow the line with your cursor you will see the output at that point in time.

At the top of the page you will see the download icon. Clicking this will download a CSV file containing the history of this Grow Zone and On Target controller.

## 8.2.6 Editing your On Target Controller

To edit your On Target settings then you need to edit your Daily Event schedule. Go to **Systems > Strategies** page and choose **Days**. Click on the edit icon on the Daily Schedule you would like to edit.

To edit the name of the Day schedule, color or category click the Edit Info button in the upper right corner.

Then to edit your On Target data, click **Edit Event**, here you can change the following:

- **Start time** - The time your photo period should begin.
- **End time** - The time your photo period should end. Each controller must sit within one calendar day (0:00-0:00), it cannot cross midnight
- **Target PPF** - This is the light intensity target in  $\mu\text{mol}/\text{m}^2/\text{s}$  that the plants will receive each day during your photo period. The default is 0 if it is left blank.

Once you have made your changes you need to click on the save icon to save.

If you are looking to edit other settings related to your dedicated grow area these can be edited under Grow Zones. Here you can change sensor, edit light group, edit fallback settings and change the chosen lighting strategy. Editing the strategy itself is, as described above, done in the Days event settings.

**!** N.B. When changing group or sensor, the sensor must be re-calibrated, refer to the calibration section for details of how to do this.

If you do not wish to make any changes you can exit this edit screen with the exit icon  
To delete the DLI controller, click on the delete icon. Please be sure you want to delete it before you click here as it cannot be recovered.

# 9. Grow Zones

Once you organized your lights and created lighting strategies you want to use for your crop, you can activate them by assigning them to a Grow Zone. Grow Zone will work as a controller coupling a group of lights with lighting strategy chosen for it, but it has many other functions. You will find a definition of a Grow Zone in section 5.3 of this manual.

# 9.1 Creating a Grow Zone

Select **Grow Zones** from the main menu. You can also click at the Active Zones section at the Dashboard to moved to the Grow Zones page.

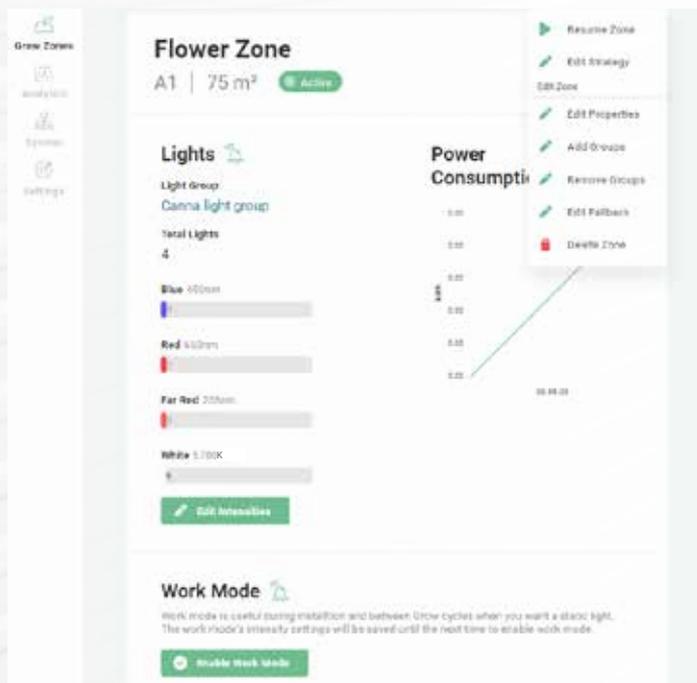
Here you will see Add new Zone button. Click on this to create a new Grow Zone. Chose a name which will describe your Grow Zone. Specify its location and area (in square meters). Those fields are optional, but location will help you to distinguish Grow zones when you have many and the information about area can be later on used for statistic e.g. calculation of costs. Click Next to save it.

Select the Light Group which is physically located in your Grow Zone by choosing its name from the drop-down list and click Submit button to save your choice.

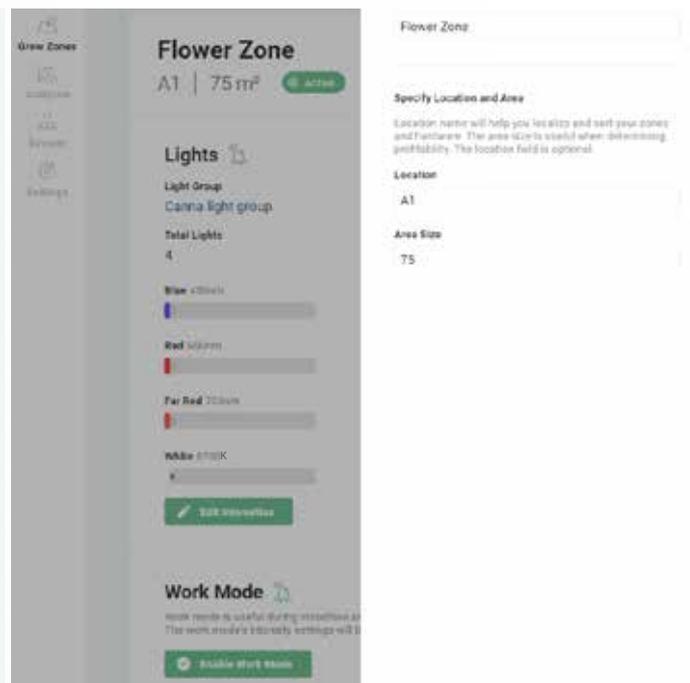
Select a Lighting Strategy you want to use in your Grow Zone and click Submit button to save your choice.

# 9.2 Editing a Grow Zone

Mobile/Tablet



Screen



Click the Grow Zone you want to edit, click Actions and chose action or Edit Zone depending on platform. Click Submit button to save your choice.

## 9.3 Monitoring a Grow Zone

Click the Grow Zone you want to edit, click Actions and chose action, click Submit button to save your choice.

### 9.3.1 Pausing and Restarting Grow Zone Lighting

When you add a Lighting Strategy to a Grow Zone it will automatically be active. If you need to pause it for any reason you can do so by clicking on Pause Grow Zone from the Actions button dropdown menu at the Grow Zone page.



To restart you can re-open the Grow Zone page and click on the Resume Grow Zone button. It will restart according to what is scheduled for that time and day rather than starting again where it left up.

You can see if the lighting Strategy for the Grow Zone is paused or not. If you can see the Pause button, then the Strategy is active and if you can see the Resume Zone button it has been paused. You will also see this in the status of the lighting Strategy if you choose System and then Strategies from the main menu. At the Strategies list, the status of it will show as inactive if it is paused, and it will show as active if it is assigned to a Grow Zone and in use.

### 9.3.2 Blinking Lights



On each Grow Zone page you will see Blink Lights button similar to the one described in section 6.3 of this manual.

### 9.3.3 Work Mode of Lights

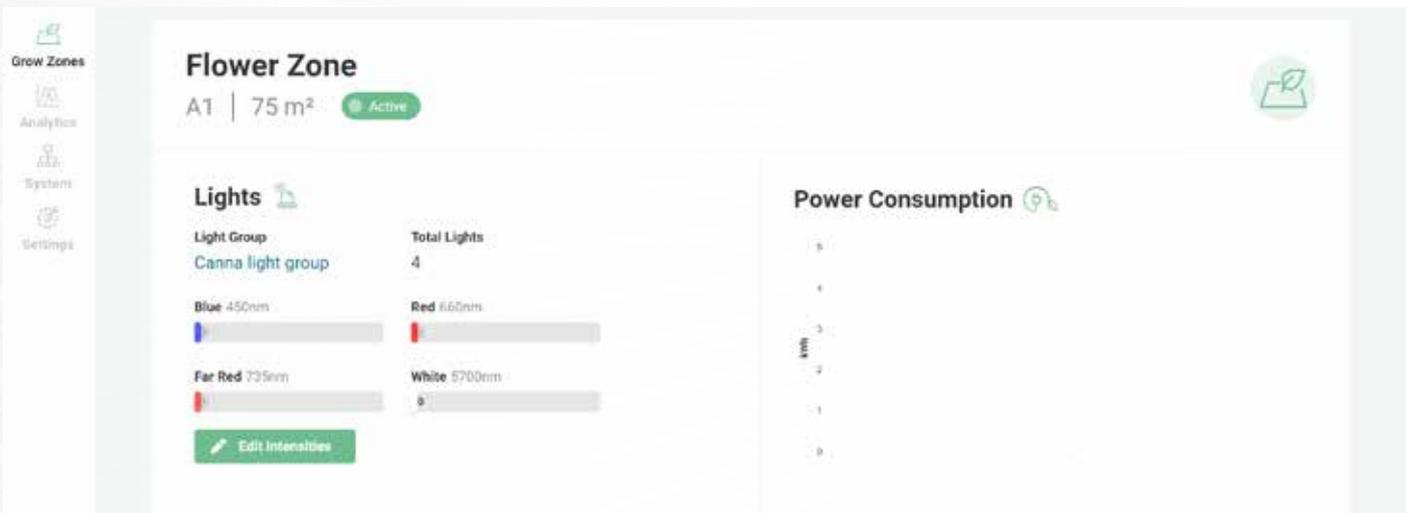
On each Grow Zone page, you will see a toggle called Work Mode. This overrides the spectral settings and changes the light emitted from the lights in this group to a white light. The purpose of this mode is to make visual inspection of the plants easier.

### There are three possible settings;

1. Greyed out, that means that Work Mode is disabled, as there are no lights added to that group.
2. Toggle to the left, that means that it is enabled but off.
3. Toggle to the right so the background is green, means that Work Mode is on.

## 9.3.4 Manual Operations

On each Grow Zone page, you will see a section called Manual Operation. You can use this section to set the spectrum and intensity of the Light Group assigned to this Zone without having to use a controller.



Move the sliders of each wavelength/LED channels up and down to increase and decrease the intensity of each available wavelength. When you do this, you will see the number next to each change in increments of 100. To use a specific value, type directly into the text field beside the sliders.

To quickly turn the lights to full power, click the All 1000 button. To quickly turn the lights off, click the All 0 button.

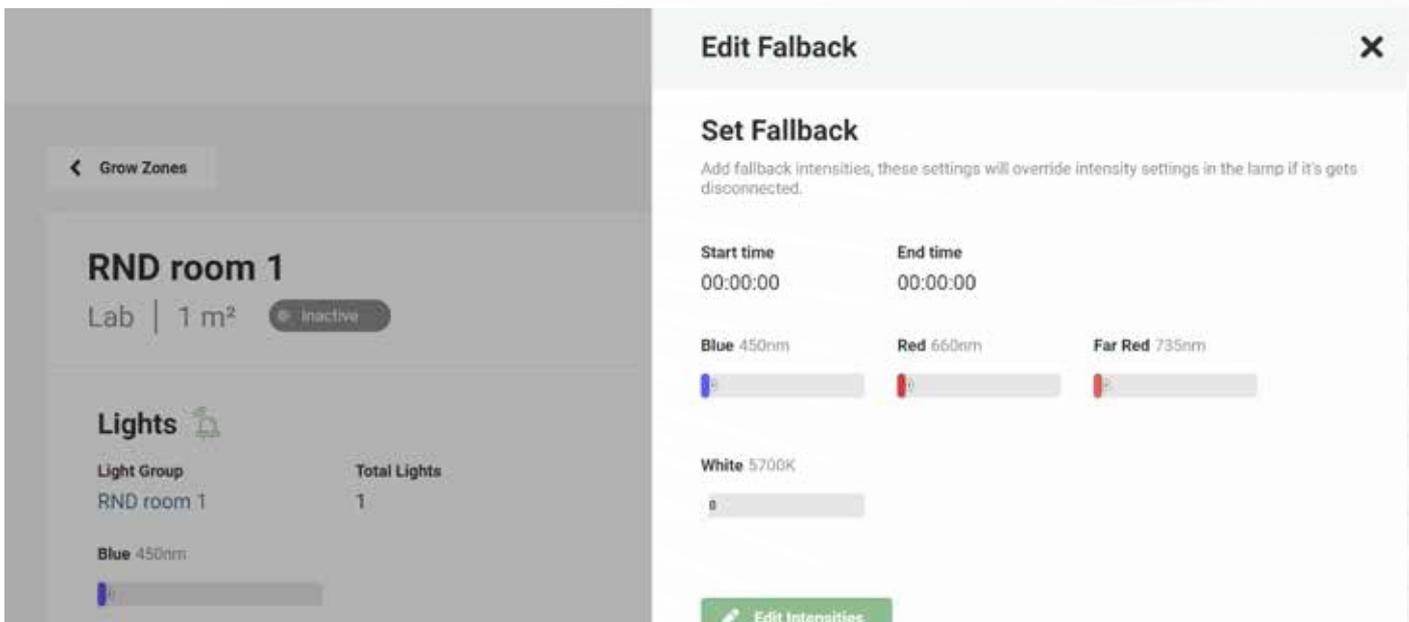
**!** **N.B.** You can only use Manual Operation if you have added some lights to the Light Group and there is no active Lighting Strategy nor another type of controller e.g. On Target, DLI or Schedule assigned to this Zone.

## 9.3.5 Fallback Settings

On each Light Group assigned to the Grow Zone you have the ability to set a Fallback Setting. This is the setting that will take over should any of the lights loose connection to helioCORE for more than 10 minutes. If this happens, that light will use the Fallback Setting you have set for the Light Group it is a member of.

The Fallback Setting will only operate when there is no connection between the lamp and helioCORE. Without a Fallback Setting the lamp will keep the last setting that it received from helioCORE before it lost connection. So if, for example, it was in a period when it was switched off, it will stay off until it makes connection to helioCORE again. Only disconnected lights will use the Fallback Setting, the other lights in the Grow Zone will continue with the settings scheduled on the Lighting Strategy or other controller assigned to this Zone. When the light re-connects to helioCORE it will go back to using the controller.

To set the Fallback Setting you need to go to click on the edit icon on the top left of the Grow Zone page and then select the Fallback Setting section.



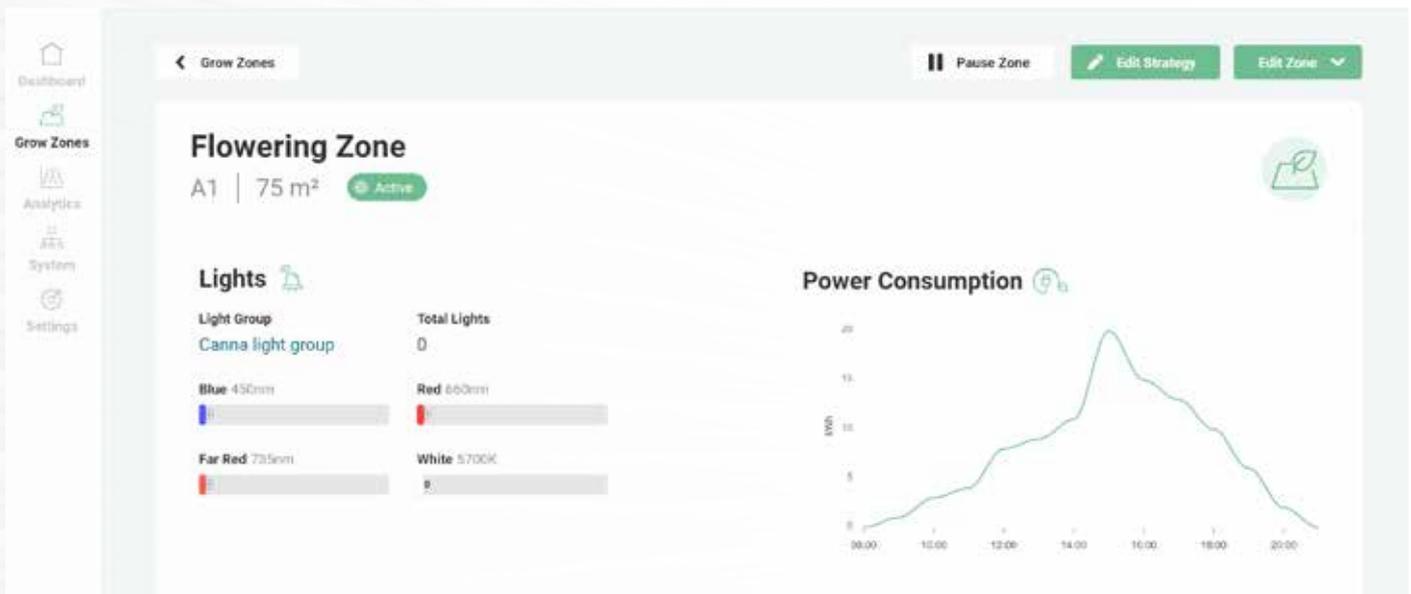
Move the sliders up and down to increase and decrease the intensity of each available waveband in increments of 100. To use a specific value, type directly into the text field beside the slider. Below the sliders are fields to set the start and end time, during which these intensities will be used. Once you are finished setting your Fallback Setting, you can click on the Enable Fallback button.

Once you have set the Fallback Setting you will see it when you open that Grow Zone page.

If you need to edit it or disable it, you will need to click the edit button in that Grow Zone again and then you will see the Change Setting and Disable Fallback buttons which you can use to change the settings or to disable the Fallback Setting.

## 9.3.6 Energy Consumption

At each Grow Zone sections you will see a graph showing energy consumption of the lights in this Grow Zone. For the better view click at the specific Grow Zone section. The power consumption of the Light Group assigned to this Grow Zone is logged. The daily cumulative consumption is displayed on the first graph and the monthly cumulative power consumption on the second.



To change the date data is being displayed for, click on the date field, and select the date you want to see from the calendar that pops up. To move the date by just a few days you could also use the back and forward arrows beside this date field.

! N.B. The energy consumption is estimated based on the lamp settings and fixture. A small discrepancy between wall-plug consumption and helioCORE logged values can occur as the fan in the fixture (for ELIXIA and DYNA fixtures) does not run constantly.

## 9.3.7 Sensor Control of Lights Output

Smart control of lights outputs allows to save energy by using lights in more economical way and providing only the light plants needs. Using smart control, you can achieve more consistent plant growth over vegetative seasons. Particularly On Target type of controller can also positively influence your plants growth and photosynthesis as well as increase photosynthetic efficacy by stabilizing the light intensity levels your plants get. Smart control option require purchase of purchased an additional license.

# 10. Analytics

Under the Analytics section in the helioCORE menu, you will find a graph showing the total power consumption and the current power usage of all your Grow Zones.

You can easily switch between your different grow zones by pressing the green drop-down button and choosing the Grow Zone of your choice.

The graph will automatically showcase today's date. By pressing on the date a calendar will appear and you can choose the date you are looking for.



By hovering over the graph you are able to read the exact value and date throughout the day.

# 11. Settings

To access the helioCORE settings you need to select the Settings option from the main menu.

## 11.2 System Settings

### 11.2.1 Electricity Price

In the helioCORE main menu go to Settings and then System Settings. Here you find a graph of the electricity prices through a 24 hour day span.

Click Edit Electricity Prices and a grid will appear where you can enter the price of your electricity per hour for each hour of the day. Make sure you enter a value for every hour.

Click on the save button to confirm your settings.

### Electricity Price

The electricity price is used by the DLI strategy. The prices are unitless.

<b>00:00:00</b> <input type="text" value="1"/>	<b>01:00:00</b> <input type="text" value="1"/>	<b>02:00:00</b> <input type="text" value="1"/>	<b>03:00:00</b> <input type="text" value="1"/>
<b>04:00:00</b> <input type="text" value="1"/>	<b>05:00:00</b> <input type="text" value="1"/>	<b>06:00:00</b> <input type="text" value="1"/>	<b>07:00:00</b> <input type="text" value="1"/>
<b>08:00:00</b> <input type="text" value="1"/>	<b>09:00:00</b> <input type="text" value="1"/>	<b>10:00:00</b> <input type="text" value="1"/>	<b>11:00:00</b> <input type="text" value="1"/>

## 11.2.2 Installing Version Updates

Heliospectra will release helioCORE updates at various points, these updates will contain new functionality and improvements. You will be informed of new releases and you can install them on the Settings page.

From Settings chose System Settings. Here you can see the version you are currently using. Click the Check for Update button to see if there is a newer version available. If there is, it will show here with the option to update to the newer version. If you click on this a dialogue box will pop up telling you not to power off helioCORE, when the update has finished this dialogue box will close.

When you update your helioCORE version, the firmware in the lights will also update at the same time, if a newer version is available. When this happens, you do not have to do anything, but you will notice your lights will switch off and on again during the process. You will also be able to check the process by going to the All Lights list from the Lights System option on the main menu. Here you will see the status of the lamp change to Updating, when it is updating, and the firmware version in the firmware column update to the new version once it has updated.

If helioCORE cannot update the firmware you will see that the version in the Firmware column does not update and the Status of the lamp changes to disconnected. In this case you will need to contact [support@heliospectra.com](mailto:support@heliospectra.com) and they will help you resolve it.

## 11.2.3 Reboot or Shut Down

On the Settings page, in the System Settings section, you will see buttons to Shut Down or Reboot. These will Reboot or Shut Down the computer in your helioCORE box.

**For troubleshooting you should use Reboot rather than Shut Down.** Reboot will Shut Down and then Re-start the computer in the helioCORE box, however, Shut Down will just switch it off. In order to switch it back on, you will have to unplug the helioCORE box and then plug it back in again. When you plug it back in again the computer will automatically re-boot. Shut Down can be a useful option if moving the helioCORE™ box to a new location, as you can Shut Down before you unplug the helioCORE box.

You need to set your time zone before you begin using your helioCORE. This sets the clock in helioCORE meaning that the correct time is displayed in the helioCORE interface and that any scheduled event you have set will happen at the correct time.

From Settings chose System Settings and you will see the Time Zone section. Select your region and the nearest major city from the drop down menus. Click on the Set Timezone button to save your selection. A pop-up dialogue box will inform you that the system will reboot. Click on the OK button and be aware that the reboot can take some time.

## 11.2 Time Zone Settings

For the system to properly adjust to your settings and time zone you need to start with adding your region and city under settings.

Go to Settings in the helioCORE main menu and scroll down to Time Zone Settings. Add your region and city of the grow facility and press Set Timezone.

Set time zone region and city.

<b>Region</b>	<b>City</b>
Europe x   v	Stockholm x   v
<input type="button" value="✓ Set Timezone"/>	

You need to be aware that helioCORE automatically adjusts for daylight savings.

Be aware, on the day of the clock change, the Daily Schedule will lose an hour if the clocks are moving forward and gain an extra hour if the clocks are moving backwards. If you have scheduled an Event in one of your Days (Daily schedules) to begin or end at the same hour that the clocks change, that event will occur twice if the clock moves backward. If the clocks moving forward, your event will be skipped as that time will not occur that day.

## 11.3 Contact Details

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A large indoor grow room with rows of green plants and overhead lighting. The room is filled with rows of green plants, likely lettuce, growing in a controlled environment. The ceiling is dark, and the floor is covered with rows of plants. The lighting is bright and focused on the plants. The overall atmosphere is clean and professional.

For more support visit  
[support.heliospectra.com](https://support.heliospectra.com)



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