HELLION® LED Master III

OPERATION - TIPS - SUNRISE / SUNSET EXAMPLES

The **HELLION LED Master III** is custom designed to control our unique 3 Channel Variable Spectrum LED fixtures and unleash their full potential. The LED Master II allows growers to automatically adjust spectrum, intensity and UV (independently and at multiple times) over the course of a day. Up to five 24hr programs (modes) can be created to cater for your plant's light requirements across all stages of growth and much more. Complex light recipes including sunrise, morning, midday, afternoon and sunset conditions can be set up with ease (list of examples included). Alternatively, simple lights on/lights off settings can be entered, or anything in-between….. So much opportunity to experiment, learn and reap the rewards!!

Setup:

Time: If this is your first time using the LED Master II Controller, you will need to set the correct time and date.
1) Press the "System Set" icon in the bottom righthand corner of the screen then press the "Time Setting" icon.
2) To set the **Year**, touch "Year" then touch above the number in green to increase and below to decrease.
   * Use the same method to set **Date** (Month, Day) and **Time** (Hour, Minute).
3) Press the green "✓" symbol to save or the black "←" symbol to go back without saving.

Channels: We recommend changing the default channel names (CH1, CH2, CH3) to match the channel names on the HELLION VS3 LED (i.e. **Veg, Bloom, UV**).
1) Go to the "System Set" page and press the "Channels Name Alter" icon.
2) Touch "CH 1" written in green to go to the key board page. Type in "**Veg**" using the up arrow to shift. Then press "OK" to save.
3) Use the same process to rename CH 2 to "**Bloom**" and CH 3 to "**UV**".
4) After all 3 x channels are renamed, check that they are "on" then press the green "✓" icon to save and return to the "System Set" screen. Pressing the black "←" will return without saving.
5) Press the black "←" or green "✓" icon to return to Main Screen (from System Set).

Temperature Protection: A Temperature/Humidity sensor is included for safety + easy monitoring.
1) Plug the sensor jack into either of the "T + RH" ports (Garden A side or Garden B side as required). Temperature (°C) and Humidity (%) will be displayed on the Main Screen (either side of 24hr time).
2) To set Temperature protection, go to the "System Set" screen and press the "Set temperature" icon. The "Set temperature protection" screen features 2 x sliding bars. Touch & drag the temperature bar to adjust. We recommend a setting of 35°C for most gardens. Touch & drag the "Protection reduction" bar to adjust. We recommend a setting of 50% for most cases.
3) Press the green "✓" icon to save and return to the "System Set" screen. Return to the Main Screen by pressing the ✓ or ← (both have same function on the System Set screen).
   * Now your lights will automatically dim to 50% of their programmed intensity if room temperature rises above 35°C.

GARDEN A/GARDEN B: The LED Master II can control 2 separate gardens (A & B) simultaneously. Access A or B by touching "GARDEN" on top right of Main Screen and choose from the drop-down menu. Be sure to connect your LED/s to the appropriate RJ11 port (A or B) if only running 1 garden.

Factory Data Reset: Touch "System Set", touch "brightness". Find "Reset" button on bottom right.
Abnormal Power failure: "**!**" icon on "System Set" page - stores & displays info related to power outages.

Using the Timer:

Timer OFF/ON: *Alarm Clock* icon on Main Screen that switches the unit between real-time manual control (Timer OFF) and 24hr automatic control (Timer ON).

Timer OFF: (grey icon) indicates that the unit is in manual status. Select a channel (Veg, Bloom, UV) by touching one of the 3 x small *Dial* icons on the left and make real-time % adjustments with your finger on the large central Dial. There are **5 x Modes** (areas of memory) in "Timer OFF" where intensity levels for Veg, Bloom and UV channels can be adjusted and stored. Switch between Modes by touching "Mode " (top left) then select from the drop-down menu. All 3 x channels on all 5 x Modes (in Timer OFF) are initially set to 25% to reduce the potential for abrupt jumps in light intensity when toggling between "Timer OFF" and "Timer ON". When you become familiar with programming in "Timer ON" (explained next) you might choose to re-set the channel intensities in the manual Modes to better suit the lighting conditions that you create in the corresponding automatic Modes.

Timer ON: Touch the grey "Timer OFF" icon to activate "Timer ON" (green icon). Now the unit is in automatic status and will operate your lights as programmed. At this point, the Main Screen should feature a table of pre-programmed data for Mode 1 (memory area 1). This is an example of a very basic *18hrs on/6hrs off* program where lights come on at 5:00 (all channels 25%) and then switch off at 21:00 (all channels 0%). Of course, more complex programming is possible and desirable but starting with simple examples may help avoid confusion.

Programming *EG (1) Change channel %s in Mode 1 to match our basic VEGETATIVE GROWTH suggestions*. Touch the "Timer Mode" (Stopwatch) icon to open the "Timer Mode" data screen. Touch anywhere in the first line of data to open the programming screen for that line. Drag the Veg (top) bar right to increase the intensity to 100%, drag the Bloom (middle) *bar* left to reduce the intensity to 0% and drag the UV (bottom) bar to 50%. Touch "YES" to save and return to the "Timer Mode" data screen. Touch the green "✓" to return to the Main Screen.

Programming *EG (2) Select Mode 2 and change it to match our basic VEGETATIVE TO BLOOM suggestions*. It's best to change Modes in manual status so touch the "Timer ON" icon to switch to *manual* status. "You are about to exit timer mode." will display. Touch "YES" and proceed to the Main Screen in "Timer OFF". Touch "Mode 1" (top left) to see the drop-down menu. Touch "Mode 2" to switch Modes. Touch the "Timer OFF" icon to return to "Timer ON" status. Now you will see the pre-programmed data table for Mode 2. This is an example of another simple Vegging program, with lights on (50%) for 18hrs and off (0%) for 6hrs. So, to setup VEGETATIVE TO BLOOM conditions, we must change the channel %s and reduce the photoperiod to **12hrs on/12hrs off** to initiate flowering. Repeating the process from EG (1), touch the "Timer Mode" icon, touch the *first line of data* and adjust "Veg" to 100%, "Bloom" to 33% and "UV" to 100%. Touch "YES" then "✓" to return to the Main Screen. To reduce the photoperiod we can change the time for lights off. Touch the "Timer Mode" icon, touch anywhere in the 2nd line of data then *adjust the 24hr timer* (using arrows) to read 17:00. Touch "YES" to save and return to the "Timer Mode" data screen. A new line of data has been created at 17:00 and the original line (at 23:00) also remains. Touch the red "Bin" symbol to clear the unwanted (original) line and touch "YES" to confirm. Now the channel %s plus lights on/off data for our suggested VEGETATIVE TO BLOOM conditions will be correct and saved in Mode 2 (Timer ON status). Touch the "✓" to return to the Main Screen.

Programming *EG (3) Select Mode 3 and setup a multi-line flowering program including SUNRISE & SUNSET.*
Refer to the **Sunrise/Sunset Spectrum (flowering)** data sets, back page of this document. Repeating the process from EG (2), touch "Timer ON" then "YES" to enter manual status. Touch "Mode 2" (top left) and select "Mode 3" from the drop-down menu. Return to automatic status (touch "Timer OFF") and the pre-programmed data for "Mode 3" will be displayed. This is an example of a simple Flowering program, with *lights on (75%) for 12hrs and off (0%) for 12hrs*. We don't need this data so let's erase it before entering the multi-line Sunrise/Sunset (flowering) data. Ok, touch the "Timer Mode" icon to open the data screen. Touch the red "Bin" symbol, then "YES" and repeat to delete both lines of unneeded data. Next, touch the green "**+**" symbol (bottom right) to enter the programming screen. Set the lights on time to 5:00 and channels to 0% (Veg), 40% (Bloom) and 0% (UV) to match the first line of Sunrise (flowering) data. Touch "YES" to save and return to the data screen. Touch "**+**" and add the 2nd line of data (5:10, 20% Veg, 40% Bloom, 0% UV). Repeat until all 5 x lines of Sunrise (flower) data are added then begin adding the Sunset (flower) data. There are 10 x lines of data in total and you will notice that the 7th line starts a new page (use the up/down arrows to scroll). 4 x pages of data (24 lines) can be programmed into each Mode so there is plenty of room to be creative! Anyhow, now you have a 10-line Sunrise/Sunset (flower) program stored in Mode 3 which can be used to automatically control your Hellion VS3 LEDs and produce lighting conditions that ***vary in spectrum and intensity*** throughout the course of a day (like natural variations in Autumn sunlight).

Further: *Setup SUNRISE & SUNSET programmes for (**veg**) and (**transition**) using the data provided*.
Use your newly acquired programming skills to delete the basic VEGETATIVE GROWTH data in "Mode 1" and enter the 10 lines of data for Sunrise/Sunset (veg). After that, delete the basic VEGETATIVE TO BLOOM data in "Mode 2" and enter the 10 lines of data for Sunrise/Sunset (transition). Having completed that task, your HELLION LED Master II will be programmed and ready to provide your plants with a well-balanced lighting diet for all stages of growth. The "veg" program (Mode 1) will create a blue dominant Spring-like spectral progression, the "transition" program (Mode 2) will create a more balanced and intense Summer-like spectral progression and the "flower" program (Mode 3) will see intensities soar and reds dominate the spectral progression for a turbo charged Autumn & masses of essential oil rich flower production.

Use Modes 4 and 5 to store simple lights on/lights off programs like the ones that you erased from Modes 1 & 2. Otherwise, you might like to experiment with more complex programs where you could try a mildly intense sunrise leading into a moderate morning, intense mid-morning, extreme midday, intense early afternoon, moderate afternoon & mild sunset…… or maybe an intense sunrise leading into hourly fluctuations between extreme and intense light levels until its time to finish the day with a moderately intense red-dominant period….. or go for intense light levels all day on both Veg & Bloom channels but fluctuate the UV % so it starts off mild and peaks across the middle few hours before tailing off…? As mentioned in the opening paragraph, there is ample opportunity for experimentation and so much potential for reward!! Enjoy.

Sunrise / Sunset Examples (duration = 40 minutes for all)

Sunrise Spectrum (veg)
05:00 Veg 0% Bloom 20% UV 0%
05:10 Veg 20% Bloom 20% UV 0%
05:20 Veg 50% Bloom 20% UV 0%
05:30 Veg 80% Bloom 10% UV 20%
05:40 Veg 100% Bloom 10% UV 40%

Sunset Spectrum (veg)
22:20 Veg 80% Bloom 10% UV 20%
22:30 Veg 60% Bloom 20% UV 0%
22:40 Veg 40% Bloom 20% UV 0%
22:50 Veg 20% Bloom 30% UV 0%
23:00 Veg 0% Bloom 0% UV 0%

Sunrise Spectrum (transition)
05:00 Veg 0% Bloom 30% UV 0%
05:10 Veg 20% Bloom 30% UV 0%
05:20 Veg 50% Bloom 30% UV 0%
05:30 Veg 80% Bloom 50% UV 20%
05:40 Veg 100% Bloom 50% UV 40%

Sunset Spectrum (transition)
16:20 Veg 75% Bloom 50% UV 20%
16:30 Veg 50% Bloom 50% UV 0%
16:40 Veg 30% Bloom 50% UV 0%
16:50 Veg 20% Bloom 40% UV 0%
17:00 Veg 0% Bloom 0% UV 0%

Sunrise Spectrum (flowering)
05:00 Veg 0% Bloom 40% UV 0%
05:10 Veg 20% Bloom 40% UV 0%
05:20 Veg 40% Bloom 60% UV 20%
05:30 Veg 70% Bloom 80% UV 40%
05:40 Veg 100% Bloom 100% UV 60%

Sunset Spectrum (flowering)
16:20 Veg 75% Bloom 100% UV 40%
16:30 Veg 50% Bloom 100% UV 20%
16:40 Veg 25% Bloom 80% UV 0%
16:50 Veg 0% Bloom 80% UV 0%
17:00 Veg 0% Bloom 0% UV 0%