CABATech Touch Controller

USER MANUAL

1. PRODUCT DESCRIPTION

Thank you for purchasing the Touch controller. This manual describes the installation and usage instructions for this product. Installation of the Touch controller should only be performed by a certified service person. Please read and understand this manual completely before using the product. Use only the products specified in this manual. Failure to follow any of these instructions for using or maintaining this device will void any warranty on the product and the owner will be solely responsible for any damages.

PRIMARY FEATURES:

1. The CABATech Touch comes with a high resolution 1280 x 800 px, 7" LCD touch screen display.
2. The Touch controller has two outputs. Each of the controller's outputs can control up to 50 lamps. It is possible to use those channels to control fixtures in two completely independent rooms, or to control up to 100 fixtures in one room.
3. 2pcs temperature and humidity sensor, 2pcs CO2 sensor, 2pcs PAR sensor can be connected externally.
4. The controller has various control modes: manual dimming, constant illumination dimming, temperature limiting dimming, timing.
5. Cycle setting, simulation of solar sunrise, sunset, Cloud model
6. Compatible with adjustable spectrum fixtures.
7. VPD display making it convenient for users to set the optimal planting environment.
8. Up to 16 weeks of scheduling.

2. PRODUCT SPECIFICATIONS

2.1. GENERAL PRODUCT INFORMATION

| Product name	CABATech Touch Controller
Product code	CTT-3CH-C01
Manufacturer	CABATech

2.2. TECHNICAL SPECIFICATIONS

|	
Controller dimensions (L x W x H)	194.5*123*25 mm
Weight	1.46 lbs
Power supply	Adapter: 100V-240V AC 50/60hz - 12V DC (1000mA)
Maximum control output voltage	10.2V
Maximum load current	10.2V/50mA (channel/per)
Maximum cable length per port	150m (500ft)
Maximum number of ballasts per port	50 (100uA @load /per)
Total number of ballasts per controller	100 (100uA @load /per)
Enclosure protection level	IP20
Number of sensors that can be carried	6
External dimming analog output accuracy:	1%
Temperature accuracy	+/-0.3 °C
Humidity accuracy	+/-4%
Warranty (controller and sensor)	1 year
Lifetime	>30,000 h

2.3. ENVIRONMENT

|	
Temperature range	0 - 40 °C
Operating humidity	<90%

2.4. COMPONENTS
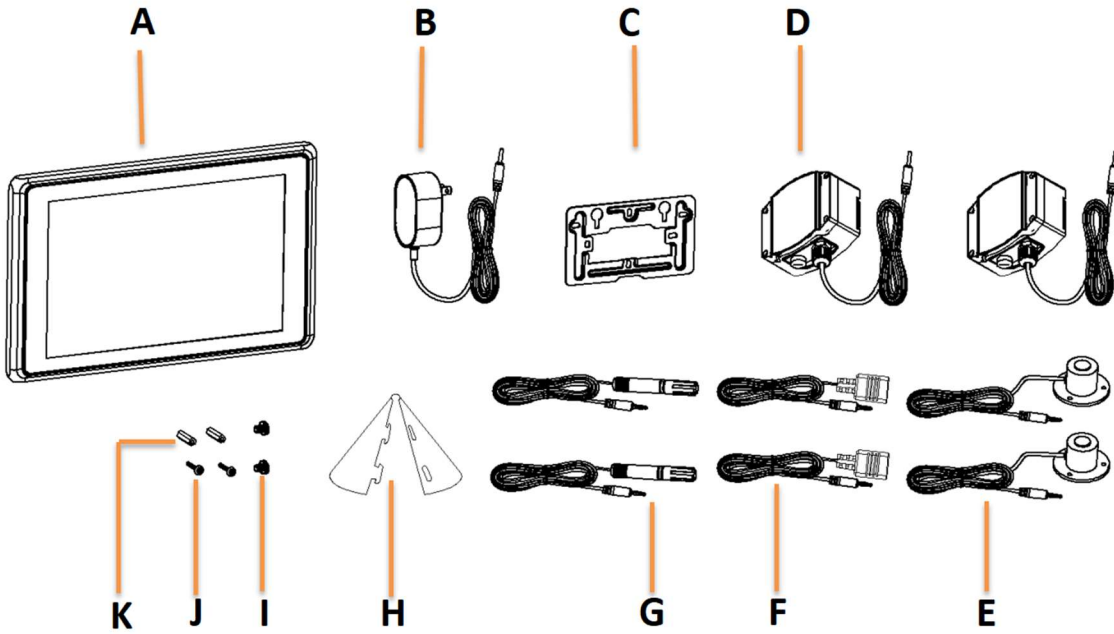
A – Touch controller

B – 120-240V AC - 12V DC power adapter (1000mA)

C – Mounting plate

D – 2x CO_2 sensor with cable (3m) - *Optional*

E – 2x PAR sensor with cable (3m) – *Optional*

F – 2x Controller cable (3.5mm jack connector convert RJ12)

G – 2x Temperature and humidity sensor with cable (3m)

H – 2x Shade

I – 2x Screw (For controller body suspension)

J – 2x Screw (For mounting plate fixing)

K – 2x Plug

2.5. CONNECTION INTERFACE INTRODUCTION
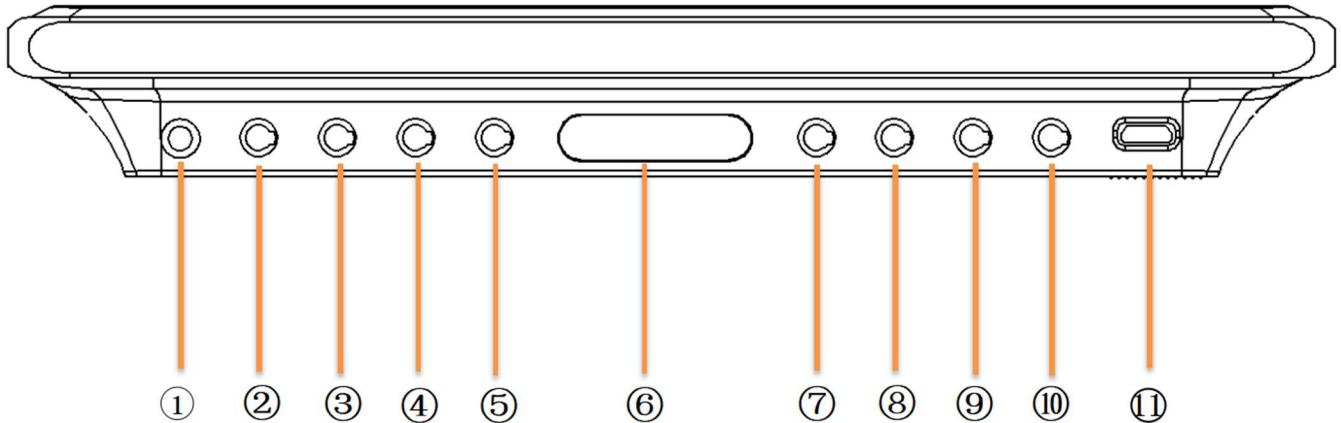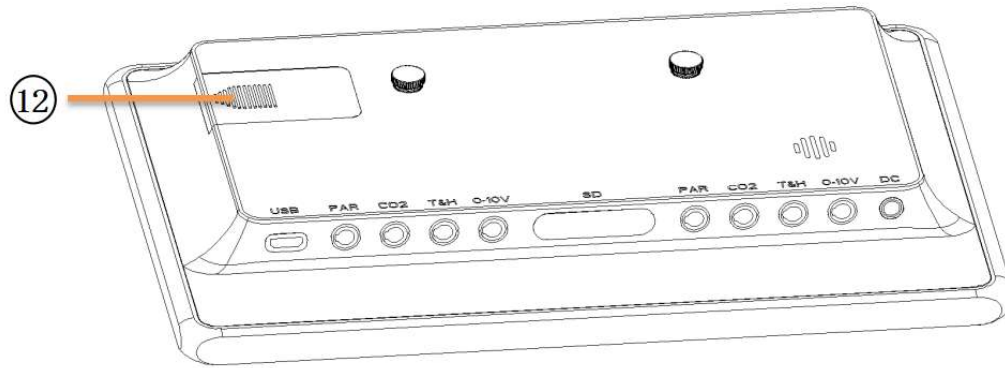
① --- 12V DC input

② --- 3.5 mm jack main channel 1 port for controlling up to Lamps and fixtures (T1)

③ --- 3.5 mm jack main Temperature and humidity sensor (T1)

④ --- 3.5 mm jack main CO_2 sensor (T1)

⑤ --- 3.5 mm jack main PAR sensor (T1)

⑥ ---SD Card（For upgrading software and downloading data records）

⑦ --- 3.5 mm jack aux channel 1 port for controlling up to Lamps and fixtures (T2)

⑧ --- 3.5 mm jack aux Temperature and humidity sensor (T2)

⑨ --- 3.5 mm jack aux CO_2 sensor (T2)

⑩ --- 3.5 mm jack aux PAR sensor (T2)

⑪ --- micro-USB, Used for software upgrade（Alternate burning port）

⑫ --- Added battery position indication----battery position, used for calendar clock battery replacement.

3. SAFETY GUIDELINES AND MEASURES

⚠ **WARNING:** Keep the controller away from fire, overheating, water, dust, and pollution.

⚠ **WARNING:** Touch controller is suitable for controlling compatible series ballast, LED power supply, please check RJ12 pin definition before use.

⚠ Do not connect the controller to other products as this can be dangerous and could cause the connected equipment to malfunction. Doing so will void the warranty.

⚠ **WARNING:** Do not open or disassemble the controller; there are no serviceable parts inside. Opening the will void the warranty.

⚠ **WARNING:** Make sure the signal wires are not reversed.

Notice

⚠ Please read all cautions and warnings before using this product.

⚠ Touch controllers have non-volatile memory that retains their settings and data in the event of power loss. The backup battery is only used to power the RTC calendar clock in the event of a power outage, however, the system does not have a backup battery and cannot operate in the event of a power outage.

⚠ External devices connected to the Touch controller will only work if they are properly connected.

⚠ The LCD screen is fragile, please handle it with care.

⚠ Do not place any heavy objects on the Touch controller's display.

⚠ Do not scratch, twist or bump the LCD screen surface.

⚠ Do not place the LCD in a hot or humid environment.

⚠ Do not expose the LCD screen to direct sunlight or strong fluorescent lights for extended periods of time.

⚠ Do not wipe the LCD screen with aggressive cleaners; this may damage the screen.

⚠ Do not unplug the Touch controller while the system is running; this may damage the device.

⚠ When unplugging, avoid pulling on the power cord directly. Always pull the power cord through the connector

⚠ To ensure safety. Be sure to unplug the power before cleaning the screen. Do not remove the power adapter.

⚠ Do not use any other power adapter than the one that came with the Touch controller.

⚠ Touch controllers should only be removed by a service person; otherwise, your warranty may be affected.

⚠ To unplug the SD card, please disconnect the power first, so as not to damage the SD card.

4. INSTALLING THE CONTROLLER

4.1. PREPARATIONS

4.1.1. First take out the controller from the box, open the battery cover (as shown in Figure 1), and take out the battery insulating sheet inside (as shown in Figure 2). After completing the above steps, the battery cover can be closed; then screw on the screw. It is used for the suspension of the main body of the controller (as shown in Figure 3).
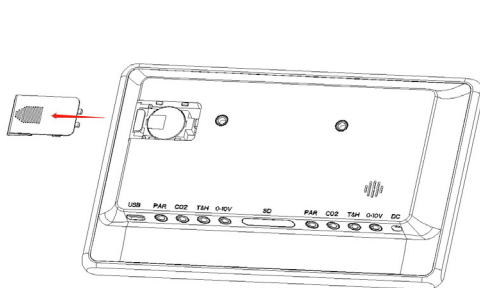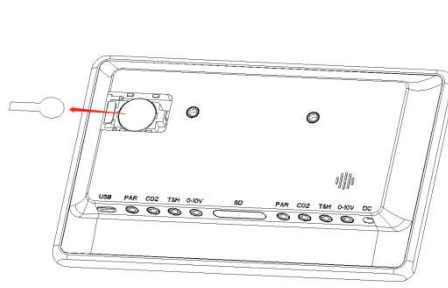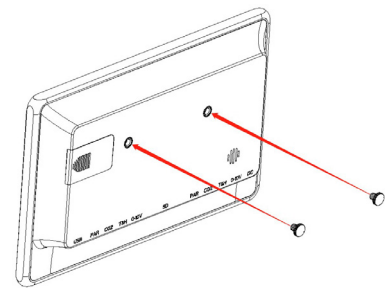
Figure 1   Figure 2   Figure 3

4.1.2. Find a suitable position and fix the mounting plate. This position is close to the AC socket, which is convenient for the controller to supply power (as shown in Figure 3 and Figure 4)
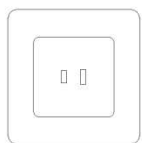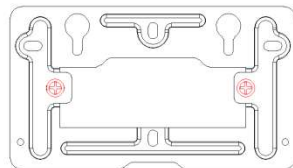
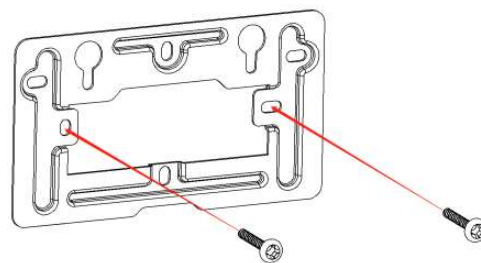The socket (AC)   The controller

Figure 4   Figure 5

4.1.3. Find a suitable place for the sensor and the controller (As shown in Figure 6). Hang the PAR sensor, CO_2 sensor, temperature and humidity sensor between the plants on average canopy height and preferably not against the wall. Do not position it in direct airflow.

Warning!

To avoid measurement errors caused by direct sunlight on the temperature and humidity sensor under the conditions of greenhouse use, please install a shading sheet on the temperature and humidity sensor (as shown in Figure 7);
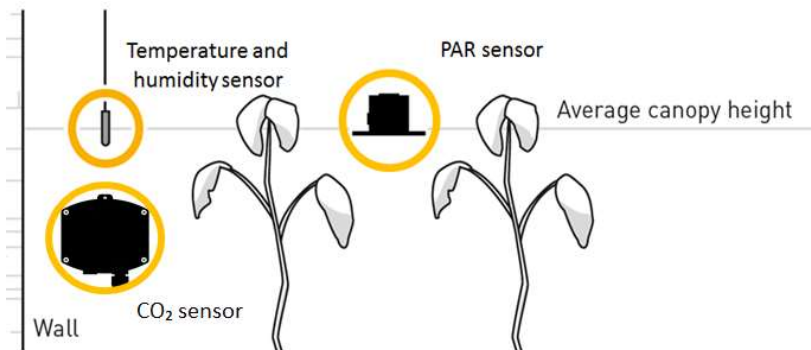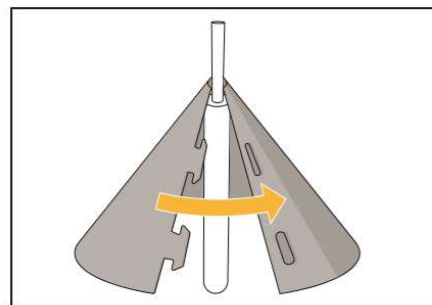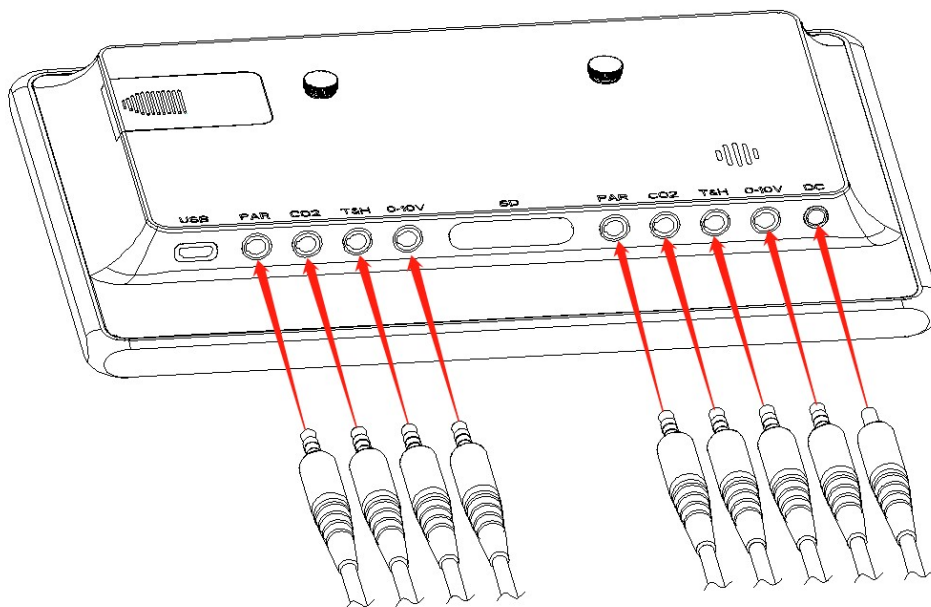
Figure 6

Figure 7

If you are using another climate control system, hang it close to the sensor of that system. If necessary, the sensor cable may be lengthened an extra 3 meter with a standard 3.5 mm jack extension cable. A sensor with a cable length of 20 meter is also available.

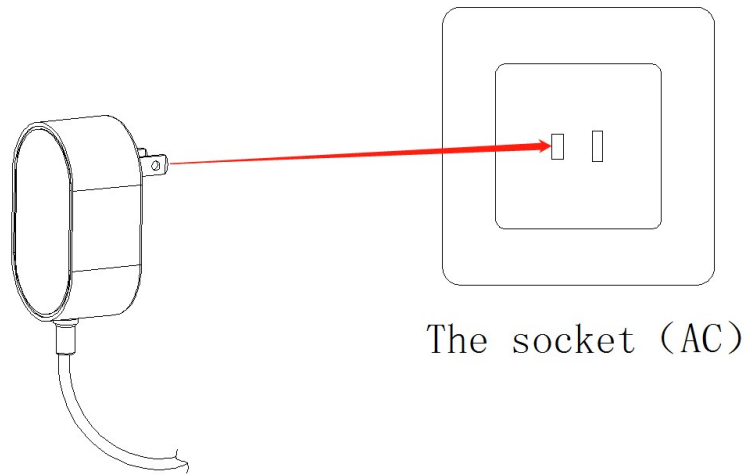**4.1.4.** Connect the luminaire cable to the controller.

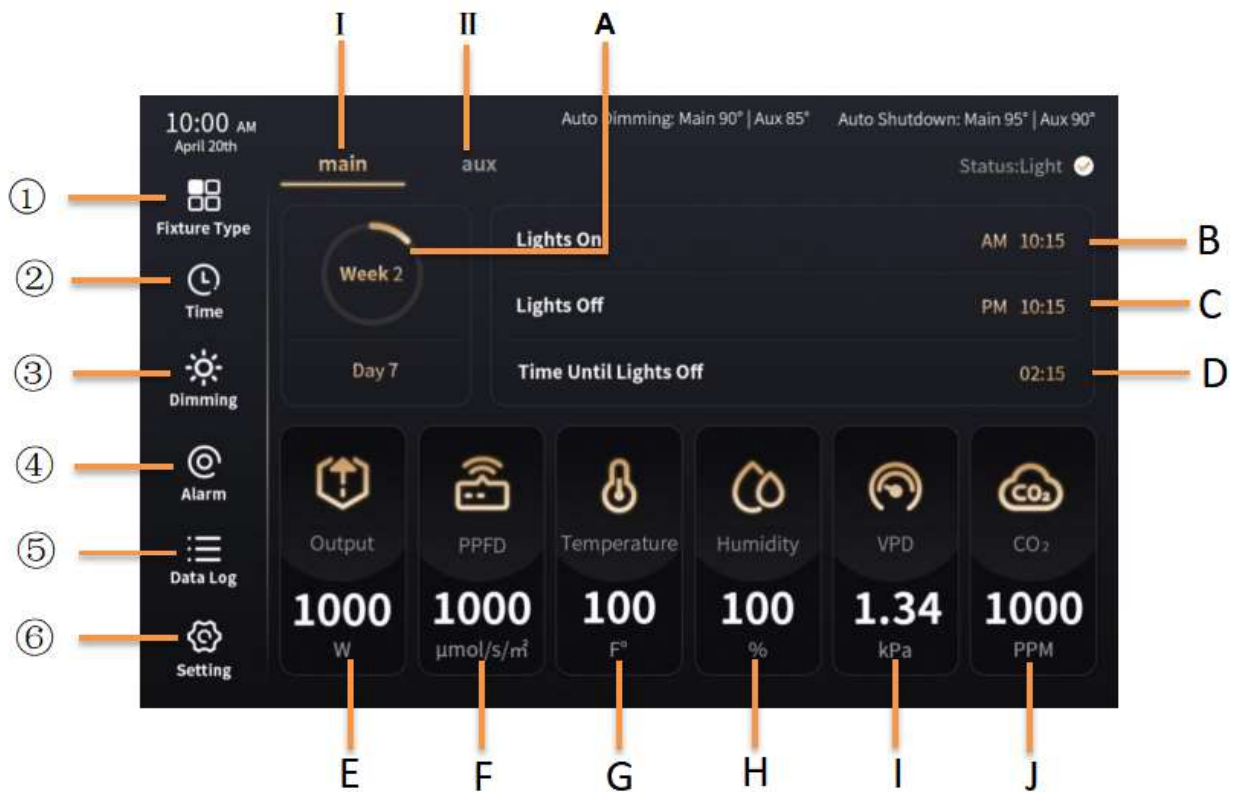**4.1.4.1:** Pay attention to the definition of the pin when wiring the lamp. If there is any difference, please confirm with our company first.

| 3.5mm Jack | RJ12 Socket | RJ12 Jack |
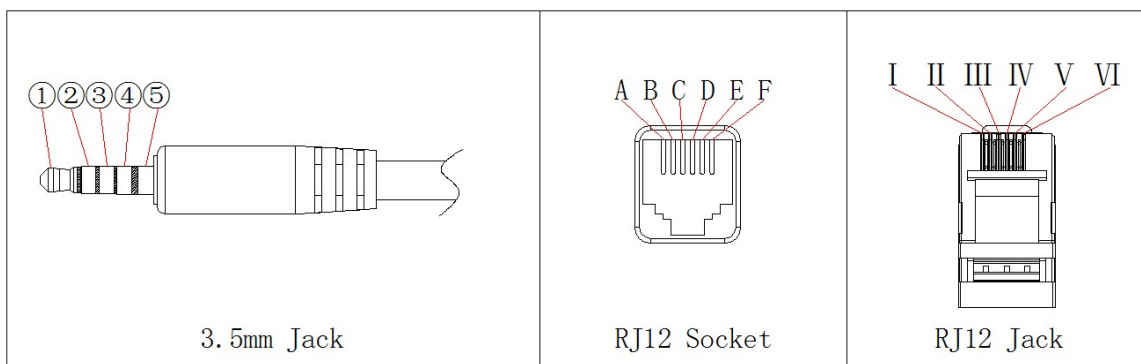
B：0-10V （+）	①	A	I
W：0-10V （+）	②	B	II
W/R/B：0-10V （-）	③	C, D	III, IV
W：0-10V （+）	④	E	V
R：0-10V （+）	⑤	F	VI

4.1.4.2. The adapter is connected to the mains, and the main controller is set.

The socket （AC）

5. OPERATION INSTRUCTIONS AND SETTINGS

①	Fixture type	Settings: Channel Type, Luminance Display Unit, Fixture Name, Spectral Color, Spectral Power
②	Time	Settings: Time to turn on the lights, time to turn off the lights, sunrise time, sunset time, cloud mode, weekly plan (week number, weekly spectral brightness, plan execution start date)
③	Dimming	Settings: Manual dimming, temperature automatic dimming, temperature automatic light off, PPFD value adaptive dimming
④	Alarm	Temperature upper and lower threshold alarm settings, PPFD upper and lower threshold alarm settings, humidity upper and lower threshold alarm settings, VDP upper and lower threshold alarm settings, CO_2 upper and lower threshold alarm settings
⑤	Data Log	Set operation records, alarm event records
⑥	Setting	Settings: Time (year, month, day, hour, minute) correction, temperature unit setting, system sound switch, screen display brightness, screen saver time setting, factory reset, SD card firmware upgrade.
Ⅰ	Main	main
Ⅱ	Aux	Aux
A	Weekly plan execution cycle	Display: The first week and day of the current week plan
B	Turn on time	Display: Time to turn on the lights every day
C	Turn off time	Display: Time to turn off the lights every day
D	Remaining off time	Display: the remaining time until the timer turns off the lights
E	power	Display: current output brightness power
	percentage	Display: Current output brightness percentage
F	PPFD	Display: Current Effective Photosynthetic Light Quantum Density PPFD
G	Temperature	Display: current ambient temperature
H	Humidity	Display: current ambient humidity
I	VPD	Display: current ambient water vapor saturation pressure difference
J	CO_2	Display: current ambient CO_2 concentration

**5.0.1.**   Power on and start the controller. After the system displays the main page by default, the system parameters are loaded and initialized, and the loading process is displayed through the picture of the week . After the week completes a circle, a beep will sound to indicate that the loading is complete. The loading time is about 38 seconds.
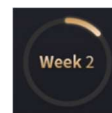
5.0.2.   Note: do not operate the controller during the loading process, you need to wait for the loading to be completed before operating.

5.0.3.   Before setting parameters, please enter the Setting page to set system parameters, such as system calendar clock Date, Time, temperature and humidity display unit temperature, system key switch sound System Sounds, screen brightness Display Brightness, standby time to enter the screen saver Display Timeout.

5.1 SETTING
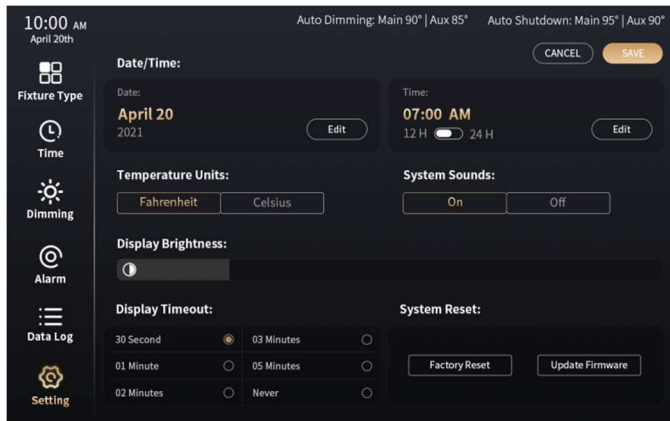
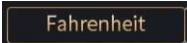**5.1.1.** Click "Setting" to enter the system setting interface.

5.1.2. Set the system date, click "Edit" in the Date column To set the system date, click the "Edit" button in

the Date column to enter the date setting page. Set the year, month, and day click "save" to save it later .
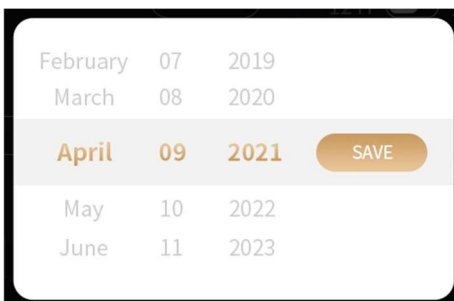
5.1.3. Set the system time, click the Time bar "Edit" button in the Time column to enter the time setting page.
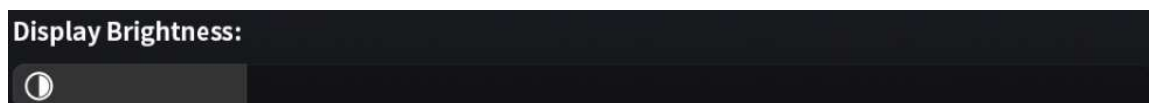
After setting the hour, minute, AM/PM, click "save" to save .
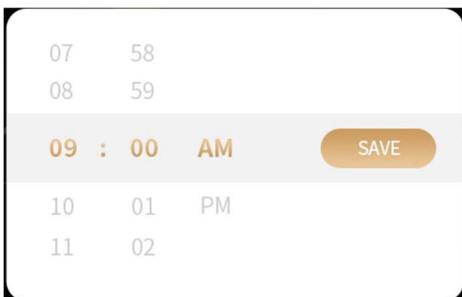
5.1.4. Fahrenheit, set the temperature display unit, select or Celsius .

5.1.5. System sounds, turn on/off the key sound, check on or off .

5.1.6. Display Brightness, To adjust the screen brightness, drag the slider to adjust the desired brightness.

5.1.7. Display Timeout, Set the screen to enter the screen saver time.

5.1.8. System Reset click Factory Reset to restore all parameters to factory settings. Click Update Firmware to update the software through the SD card. If the SD card is detected and the file "SSC3.bin" is found in the SD card, the system will update the software, and the update progress will be displayed on the home page. After the update is completed, the system restarts. System Reset to view the software version number.
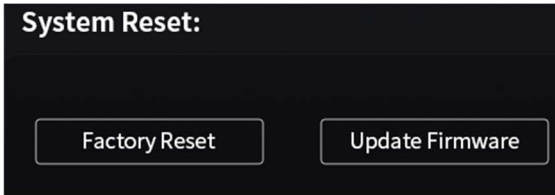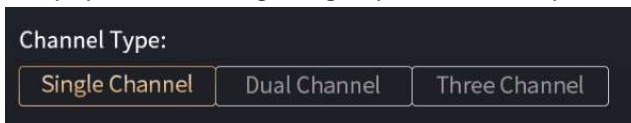

5.2. FIXTURE TYPE

Click on "Fixture type" to enter the basic parameter setting module.

Channel Type

Lamp spectrum settings, single spectrum, dual spectrum, triple spectrum can be set.

Display Mode

Select the display mode for fixture brightness between percentage or power.
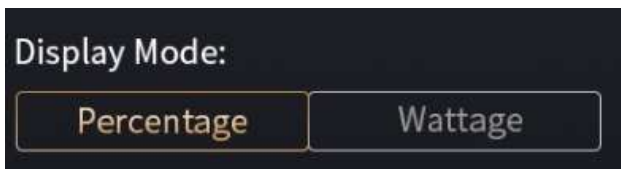
Light Fixture

Set the name of the fixture, click the edit icon, a keyboard will pop up, you can enter the English name of the fixture, click OK

Spectral Settings

    1. When "Single Channel" operation is selected, click on Ch1 to select it, and then select the spectral color CW, ... UV to set the spectral color of Ch1.

    2. When "Dual Channel" operation is selected, click Ch1 or Ch2 to select it, and then select the spectral color CW, ... UV to set the spectral color of Ch1 and Ch2.

   **3.** When "Three Channel" operation is selected, click Ch1 or Ch2 or Ch3 to select it, and then select the spectral color CW,...UV to set the spectral color of Ch1, Ch2, and Ch3.
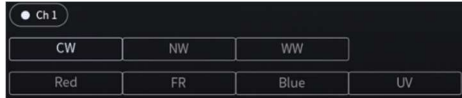
Ch 1
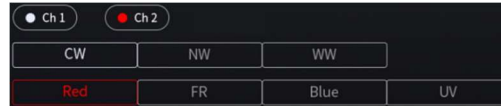
Ch 2

Ch 3

Power settings

    1. When Channel Type selects Single Channel, click the Ch1 Power to edit icon, the numeric keyboard will pop up, and you can input the power of Ch1.

    2. When Dual Channel is selected for Channel Type, click the Ch1 or Ch2 to edit icon, the numeric keyboard will pop up, and you can input the power of Ch1 and Ch2.

    3. When Channel Type selects Three Channel, click the Ch1 or Ch2 or Ch3 to edit icon, and then pop up the numeric keyboard, you can input the power of Ch1, Ch2, Ch3.
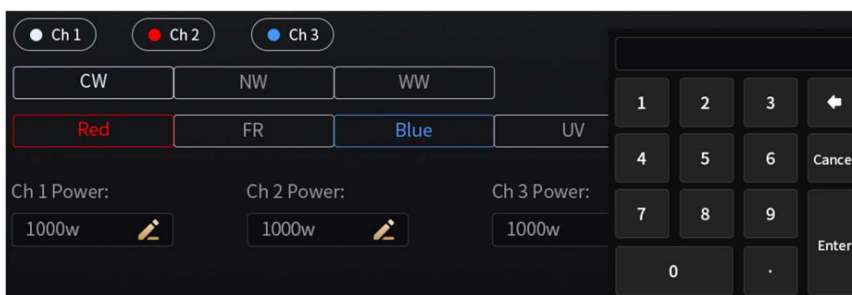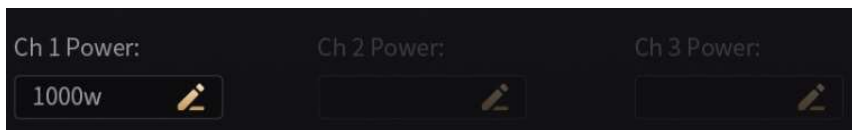
    4. On the Aux page, if you need to set the fixture information to be consistent with the main channel, click Follow Main, and the fixture type parameters of the secondary channel will follow the main channel settings.

5.3. TIMING/SCHEDULING SETTINGS
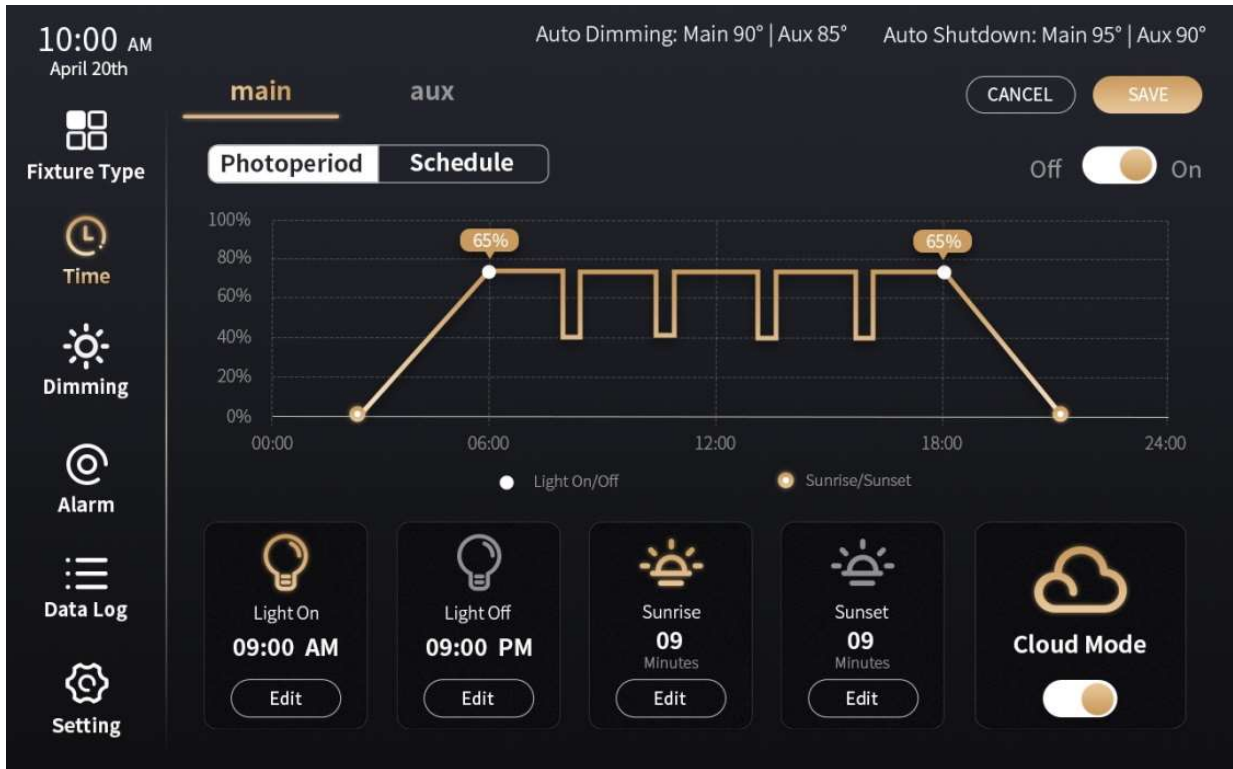
Click "Time" , Timing/ Scheduling Settings. On this interface, you can set the time of timed light on/off, the duration of sunrise and sunset, and cloud-like on/off; weekly schedule settings, including the number of plant growth weeks, weekly brightness output settings for each spectrum, and the start time of weekly schedule execution.

5.4. PHOTOPERIOD

Click Photoperiod to set daily timing parameters.

Light On

Timing turn-on time setting, you can preset the daily turn-on time of the lamps, click "Edit" entering the time setting page, As shown below, set the light-on time: 9 a.m.
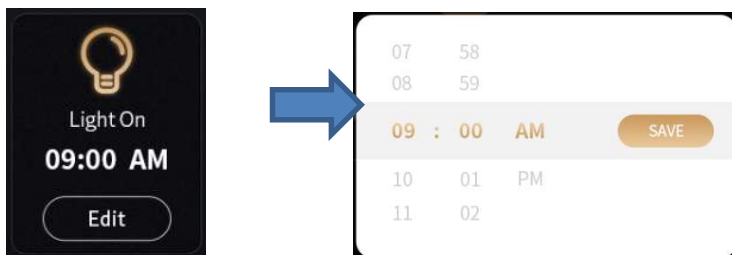
Light Off

Timing light off time setting, through this setting you can preset the light off time of the lamp every day, click "Edit" to adjust, As shown below, set the light-off time :9:00 pm.
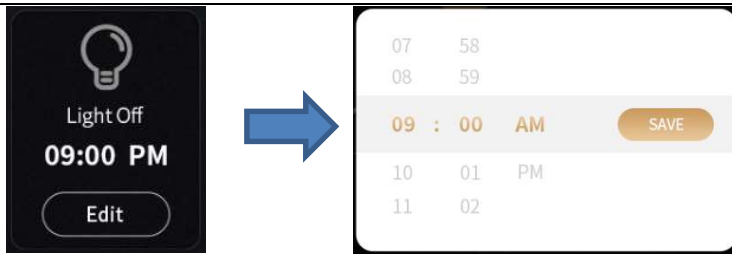
Sunrise

Simulate the setting of the sunrise duration, through which you can preset the sunrise duration, click "Edit"
to adjust, As shown in the figure below, the sunrise time is set to 9 minutes, and the power gradually rises from 0 to the set maximum value for 9 minutes.
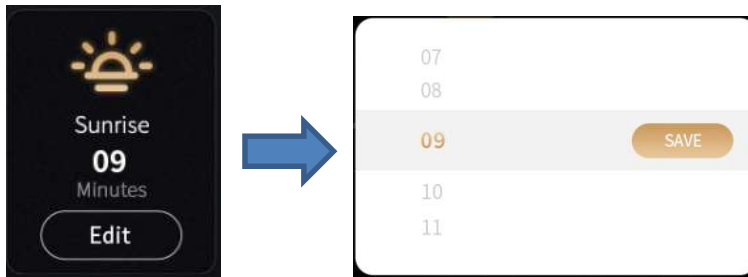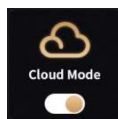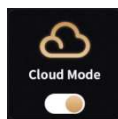

Sunset

Simulate the setting of the sunrise and sunset time, through which you can preset the sunset time, click "Edit" to adjust, As shown in the figure below, set the falling time to 9 minutes, and the power gradually turns off from the set maximum value to 9 minutes.
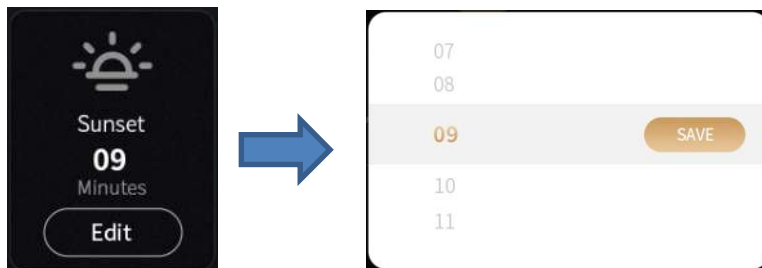
Cloud Mode

Cloud mode switch , After turning on cloud mode, the brightness decreases to 40% of the set brightness every 3 hours and returns to the set brightness after 30 minutes. Click to turn the timer function on or off.
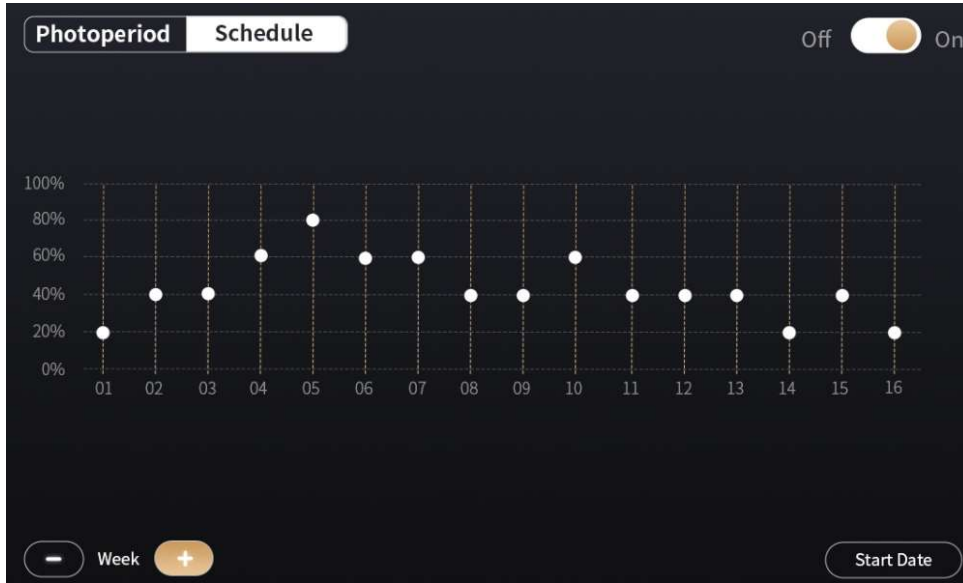
Aux page

Click Follow Main, Sub channel timing parameters follow the main channel settings.
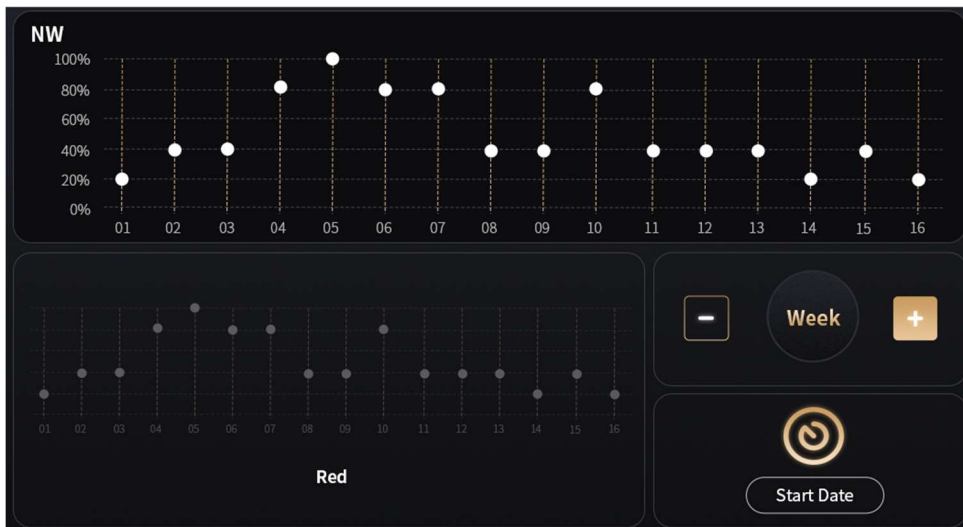
5.5. SCHEDULE

Click "Schedule" , Enter the weekly plan setting mode

Week, click "+/-" Set the number of weeks of plant growth, up to a maximum of 16 weeks.

**Single Spectrum** - sets the weekly light output of the fixture.

Dual Spectrum - set the brightness output of each spectrum of the fixture every week.

As shown in the figure above, the upper table area is the editing area, and the lower table area is the display area. Currently, the weekly brightness and number of weeks of the NW channel can be set. To set the weekly brightness and number of weeks of the Red channel, click the Red table area. At this time, the Red table is moved up to the editing area, and the NW table is moved down to the display area. Note that when the Follow main function is enabled on the aux page of the Schedule, you need to enter the aux page to view the table waiting for the aux page table to be updated synchronously. After the table update is completed, the weekly brightness and week number of the Red channel can be edited.

Three spectrums, set the brightness output of each spectrum of the fixtures per week.
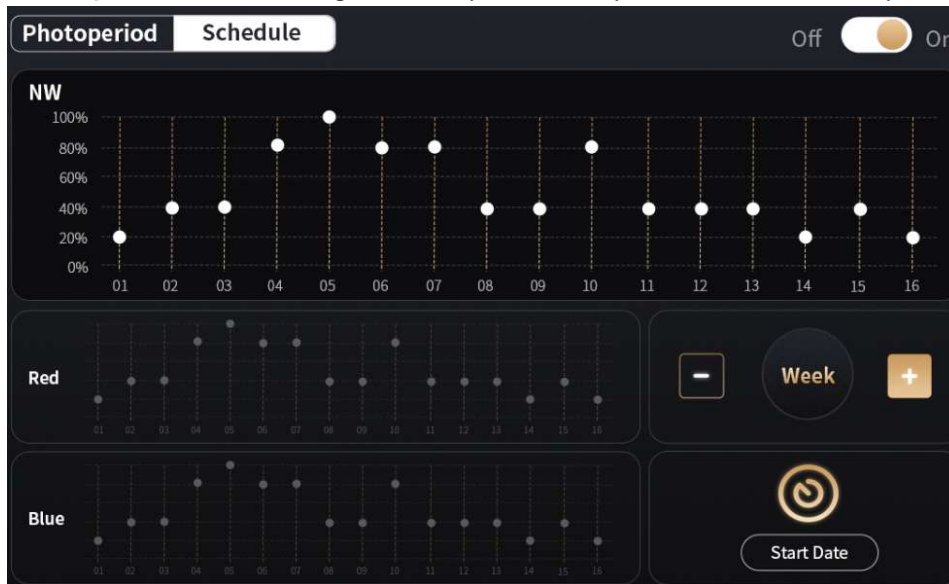
As shown in the figure above, the upper table (NW) area is the editing area, and the lower table (Red, Blue) is the display area. Currently, the weekly brightness and number of weeks of the NW channel can be set.

To set the weekly brightness and number of weeks of the Red channel, click on the Red table area. At this time, the Red table is moved up to the editing area, and the NW table is moved down to the display area. Note that when the Follow main function is enabled on the aux page of the Schedule, you need to enter the aux page to view the table waiting for the aux page table to be updated synchronously. After the table update is completed, the weekly brightness and week number of the Red channel can be edited.

To set the weekly brightness and number of weeks of the Blue channel, click the Blue table area. At this time, the Blue table is moved up to the editing area, and the NW table is moved down to the display area. Note that when the Follow main function is enabled on the aux page of the Schedule, you need to enter the aux page to view the table waiting for the aux page table to be updated synchronously. After the table update is completed, the weekly brightness and week number of the Red channel can be edited.

Start Date

Click ![Start Date], Enter the weekly plan execution start date setting page and set the start date.

Click ![Off On], Turn the Schedule feature on or off. Note: If the lamp is a single-spectrum lamp and the Par Sensor Dimming function is turned on, then the Schedule function is turned on, and the Par Sensor Dimming function is automatically turned off

Aux Page, click ![Follow Main] Follow Main, The weekly planning parameters of the secondary channel follow the settings of the main channel.

5.6. DIMMING

Click "Dimming" ⚙️, Enter the dimming interface. There are 4 dimming modes including Manual Dimming, Auto Dimming, Auto shutdown, and PAR Sensor Dimming, of which PAR Sensor Dimming is only valid for single-spectrum lamps.

Example:

a. If the lamp is a single-spectrum lamp, when it is in the PAR Sensor Dimming state, manually adjust the brightness of the lamp and automatically turn off the Par Sensor Dimming function

b. The lamp is a single-spectrum lamp. When it is in the PAR Sensor Dimming state, when the Auto Dimming function or the Auto Shutdown function is executed, the PAR Sensor Dimming function will be stopped immediately.

c. When the controller executes the Auto Dimming function state, then executes the Auto Shutdown function, and immediately stops the Auto Dimming function.

Manual Dimming

Click "Manual Dimming" 🖐, enter Manual Dimming. For single-spectrum, dual-spectrum, and triple-spectrum lamps, manual dimming enters the corresponding operation page, click"+/-" or drag the slider to adjust the output brightness, as shown in the figure below, the power is: 500W*50%=250W. Click Lights Off ⬤ Lights On icon to turn on and off manually.

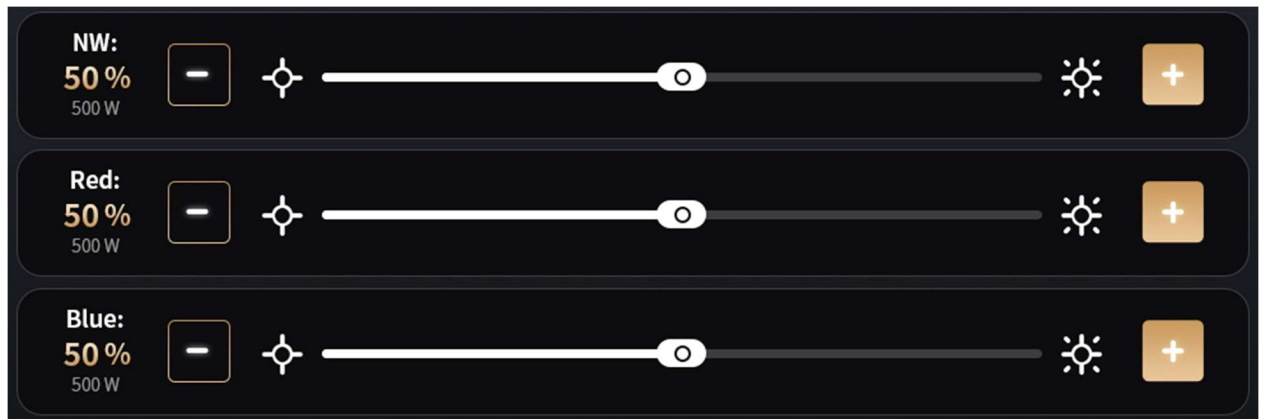Aux page, click Follow Main ⬤ Follow Main, sub channel manual dimming parameters follow the main channel settings.
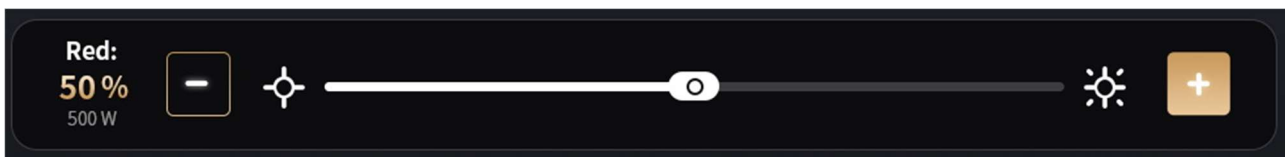
Single Spectrum Fixture Manual Dimming Page

Dual Spectrum Fixture Manual Dimming Page

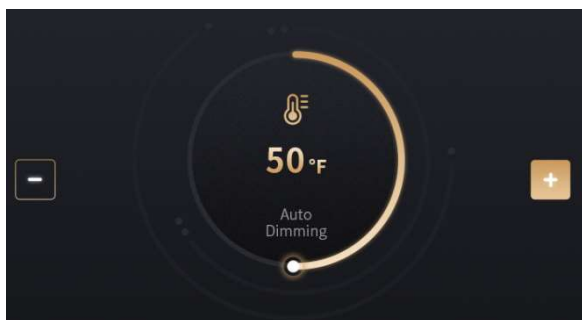

Manual dimming page for three-spectrum lamps

Auto Dimming

Click "**Auto Dimming**" , enter **Auto Dimming**-Temperature automatic dimming mode, click"+/-" or drag the slider, set the upper limit dimming temperature. As shown in the figure below, when the ambient temperature exceeds 50°F, the brightness of the lamp will automatically decrease to 50% of the current brightness, and it will be detected every 10 minutes whether the temperature exceeds the set value. Click icon, turn it on or off.

Aux page

Click Follow Main, sub channel Auto Dimming parameters follow the main channel settings.


Auto Shutdown

Click "**Auto Shutdown**" , enter **Auto Shutdown**-Temperature automatic light off mode, click"+/-" or drag the

slider, Set the upper limit light off temperature. As shown below, when the ambient temperature exceeds 50°F, the

light will automatically turn off. Click icon, turn it on or off.

Aux Page

Click Follow Main, sub channel Auto Dimming parameters follow the main channel settings.
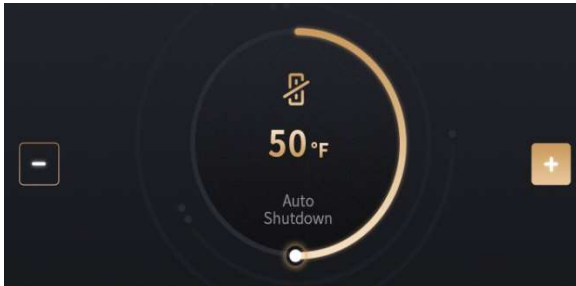
PAR Sensor Dimming

Click "**PAR Sensor Dimming**" , enter **PAR Sensor Dimming-**Adaptive Dimming Mode, click"+/-" or drag the slider to set the PPFD value that the lamp output needs to reach. After this function is turned on, the output brightness of the lamp is automatically adjusted to the currently set PPFD value and remains constant. Click icon, turn it on or off. As shown in the figure below, set the output brightness of the lamp to 500PPFD and keep it constant.

Aux page, click Follow Main, The sub channel Par Sensor Dimming parameters follow the main channel settings.
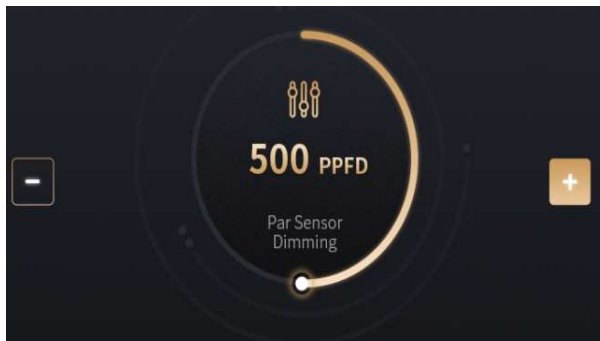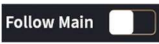
6. ALARMS

Click "Alarm" , Enter the alarm threshold setting interface. Set Temperature, PPFD, Humidity, VPD, CO_2 upper and lower thresholds.
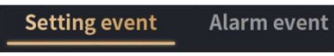
Temperature threshold setting

1. Click "Temperature" to turn on/off the temperature setting interval alarm function.

2. Drag the upper slider to adjust the upper limit and lower limit of the alarm temperature. The interval temperature is the lowest at 0°C and the highest at 49°C.

3. Similar to the temperature adjustment method, you can set to the PPFD, Humidity, VPD, and CO_2 alarm functions and thresholds.

> → PPFD threshold can be set from 200-2000
> → Humidity threshold can be set from 0% to 100%
> → VPD threshold can be set from 0kPa-4kPa
> → CO2 threshold can be set from 100PPM to 5000PPM

Aux page

Click Follow Main to set the Aux channel alarm parameters to follow the Main channel setting.

7. DATA LOG

Click "Data log" to check event log

Click "Setting event" to check the setting parameter change record

Click "Setting event" to check the alarm event log

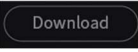| Setting event	Alarm event	
Date	**Time**	**Event Description**
April 20th, 2021	17:00	Main lighting manually turned on.
April 20th, 2021	07:00	Main lighting manually turned on.
April 20th, 2021	17:00	Aux lighting manually turned on.
April 20th, 2021	07:00	Main lighting manually turned on.
April 20th, 2021	17:00	Aux lighting manually turned on.
April 20th, 2021	07:00	Main lighting manually turned on.
April 20th, 2021	17:00	Aux lighting manually turned on.
April 20th, 2021	07:00	Main lighting manually turned on.
April 20th, 2021	17:00	Aux lighting manually turned on.

Slide the slider, pages can be turned to view event log information.

When the controller detects that the SD card is inserted, the "Download" icon [Download] is activated.

To download the event record information, click the [Download] button, which will generate "setting event.txt", "alarm event.txt", "Sensordata.txt" onto the SD card.

When the SD card is not detected, the "Download" icon is grey [Download] and clicking the button will not work.

Click "Clear Log" [Clear Log] to clear all event log information.

8.MAINTENANCE AND REPAIR

WARNING: Do not open or disassemble the controller, it contains no serviceable parts. Opening the controller will void its warranty.

WARNING: Do not use acids, solvents, abrasives or other aggressive substances to clean the controller as this may cause damage.

The controller is maintenance free. It may be cleaned with a soft dry cloth. Please contact your reseller in case of controller malfunction.