

# MATRIX

MC2 Controller

User Manual



# Contents

---

1. Safety information	1
2. Product contents	2
3. Specifications	3
4. Dimension drawing	5
5. Installation	6
6. Connection	8
7. Control interface	11
8. Operation	12
8.1 First time setup	12
8.2 Light control	16
8.2.1 Channel 1	16
8.2.2 Channel 2	21
8.2.3 Auto dim and auto shutdown	21
9. Warranty	23

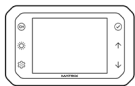
# 1. Safety information

---

**Warning! Please read the following information carefully before installing and using.**

- Please read and understand this manual completely before installing and using the product.
- Keep the MC2 controller away from fire, excessive heat, water, duct and contamination. Do not open or disassemble the MC2 controller. Opening the controller will void its warranty immediately.
- The input voltage should be kept above 11.5V and below 12.5V DC; the input current should not be lower than 700mA; otherwise, the product may not work properly.
- MC2 controller should only be used to control compatible Matrix lights. Do not connect the MC2 controller to other products, as this can be dangerous and may cause the connected equipment to malfunction. Doing so will void the warranty.
- Do not place the LCD in a hot or humid environment and expose the LCD screen to direct sunlight or strong fluorescent light for long periods.
- Do not leave the MC2 controller unsecured from wall mount brackets.

## 2. Product contents



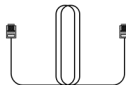
MC2 Smart Controller  
x 1pc



Iron Plate  
x 1pc



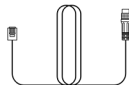
Expansion Screws  
x 2pcs



RJ12 6P6C Cable (3m)  
x 2pcs



Power Adapter  
(120-240V AC - 12V DC)  
x 1pc



B4 Cable  
x 2pcs



Cable Tie  
x 4pcs



Wire Tie  
x 2pcs

Note: Temperature/Humidity sensor and CO<sub>2</sub> sensor are sold separately.

### 3. Specifications

---

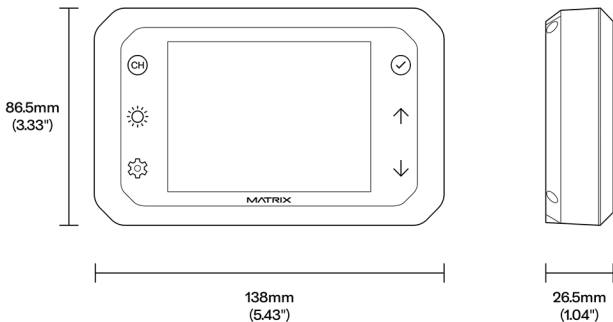
Adapter Input	100-240V, 50/60Hz 0.2A
Controller Input	12V, 1A
Lighting Control Channels	2
Lighting Control Level	OFF/25%/40%/50%/60%/80%/100%
Number of Fixtures Per Channel	80(0-10V); 100(RS-485)
Sensors	Temperature and Humidity sensor, CO <sub>2</sub> sensor
Temperature Range	-20-80°C(-4-176°F)
Temperature Accuracy	±0.2 °C
Humidity Range	0-100%

### 3. Specifications

---

Humidity Accuracy	<b>±2%</b>
CO <sub>2</sub> Range	<b>10-5000 PPM</b>
CO <sub>2</sub> Accuracy	<b>±(50PPM + 3%F·S)</b>
Working Environment	<b>Temperature: 0-50°C(32-122°F), Humidity≤80%</b>
Weight	<b>0.48 lb</b>
Dimensions	<b>L: 5.43 in * W: 3.33 in * H: 1.04 in</b>
Installation	<b>Wall mount with screws, magnet</b>
Warranty	<b>3 years</b>

## 4. Dimension drawing

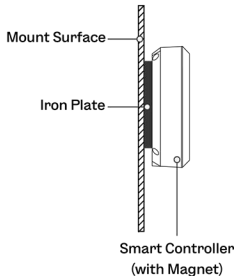


# 5. Installation

---

## Mount with 3M Adhesive

Remove the tape cover from the iron plate and paste the plate on the mount surface where you want the controller located. Then you can place the MC2 Controller on the iron plate via a built-in magnet on its back.



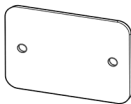
## 5. Installation

---

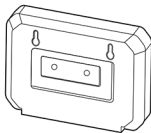
### Mount with Expansion Screws

This installation method requires drilling holes where you plan to mount the MC2 Controller. First measure the distance between the holes on the iron plate and mark the distance on the mounting surface. Next, use a drill to create the necessary holes and push the plastic expansion pipes in. Then line the iron plate's holes with those holes, and screw it into place using the expansion screws. Now the Controller can be placed directly onto the iron plate thanks to its built-in magnet!

You can also hang your MC2 Controller directly on the screws without using the iron plate. First, measure a center distance of 74mm and drill an expansion screw on each point. Next, hang the MC2 Controller directly on the screws by sliding the slotted hanging holes over the screws and then allowing the MC2 Controller to hang down.

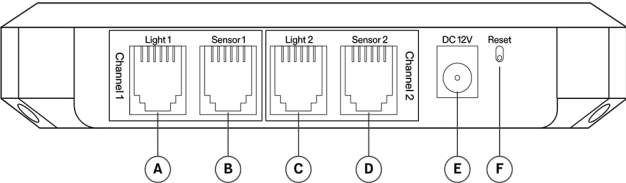


Mounting Hole



Slotted Hanging Holes

## 6. Connection

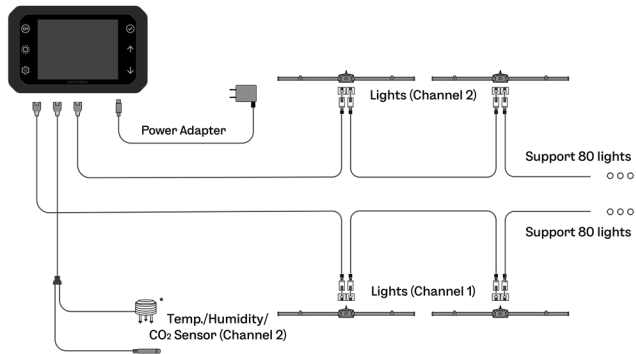


A	RJ12 Network interface: Light control (Channel 1)
B	RJ12 Network interface: Sensor port (Channel 1)
C	RJ12 Network interface: Light control (Channel 2)
D	RJ12 Network interface: Sensor port (Channel 2)
E	Power Input: 12V 1A DC
F	Reset

# 6. Connection

## System Connection

MC2 Smart Controller



\* Temperature/Humidity sensor, CO<sub>2</sub> sensor and splitter are sold separately.

## 7. Control Interface

### Channel Button

Press to switch Channel 1/ Channel 2.

### Light Button

Press to switch Light type: Main/UV/FR.

### Setting Button

Press to set Manual/ Schedule mode.



### Confirm Button

Press to confirm settings.  
Long press to lock or unlock the screen.

### Up Button

Press to increase value of current setting. Long press to enter system setting.

### Down Button

Press to decrease value of current setting.

# 7. Control Interface

## 1. Channel Display

Channel 1 or Channel 2 setting and status.

## 2. Main Light White Bars

Light intensity level and percentages.

## 3. Main Light Spectrum

Displays the current Light spectrum: Seedling, Veg or Flower.

## 4. Main Light Mode

Manual/Schedule mode of current Channel.

## 5. UV Light Mode

Manual/Schedule mode of current Channel.

## 6. FR Light Mode

Manual/Schedule mode of current Channel.

## 7. Environment Status

Displays current Temp,RH, VPD&CO<sub>2</sub> data.

## 8. Auto Dim & Auto Shutdown

Set trigger temp.for each channel.

## 9. Sunrise/Sunst

Turn on/off of Sunrise/Sunset in cycle mode.

## 10. System Setting

System settings of button voice, 12H/24H, time, °C/°F, calibration, Screen Brightness.

## 11. Channel Mode

Set Independent/Follow mode for Channel 2.

## 12. Button Voice

Turn on/off the button voice.

## 13. System Lock

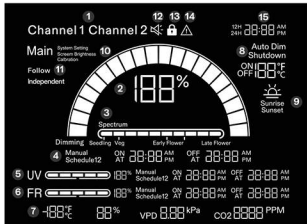
Indicates system is locked and cannot operate.

## 14. Alarm Icon

Indicates a system abnormality.

## 15. Time Mode

Set 12H or 24H time mode and displays the current time.



# 8. Operation

## 8.1 First Time Setup

Turn on the MC2 controller by connecting with the power adaptor included. Make sure the adaptor plug into an appropriate AC outlet (120V-240Vac). Connect the RJ12 cable included between lights and light control port on the controller. Plug the Temp./Humidity Sensors into sensor Port. Place the sensors in appropriate positions.

### Setting Button Voice

Long press  $\uparrow$  for 3 seconds to enter the system setting and the button voice icon will be flashing.

Press  $\uparrow$  to turn on the voice  $\downarrow$  or turn off the voice.

Press  $\checkmark$  to confirm.



### Setting Time Mode (12H/24H)

Long press  $\uparrow$  for 3 seconds to enter the system setting.

Press  $\odot$  until the 12H/24H icon flashes. Press  $\uparrow$   $\downarrow$  to switch between 12-hour time and 24-hour time. Press  $\checkmark$  to confirm.



# 8. Operation

## Calibrating Time

Long press  $\uparrow$  or 3 seconds to enter the system setting.

Press  $\odot$  until the time display flashes.

Press  $\uparrow$   $\downarrow$  to set the current time and press  $\odot$  to confirm.



## Switching Temperature Units ( $^{\circ}\text{F}/^{\circ}\text{C}$ )

Long press  $\uparrow$  for 3 seconds to enter the system setting.

Press  $\odot$  until the temperature unit icon flashes.

Press  $\uparrow$   $\downarrow$  to select the unit and press  $\odot$  confirm.



## 8. Operation

### Adjust Screen Brightness

Long press ↑ for 3 seconds to enter the system setting.

Press ☑ until the Screen Brightness displays.

Press ↑ ↓ to adjust the brightness and press ☑ to confirm.



### Selecting Channel Mode

Long press ↑ for 3 seconds to enter the system setting. Press ☑ until the Channel 2 independent flashes. Press ↑ ↓ to select the independent mode or follow mode.

Press ☑ to confirm.






**Independent Mode:** Channel 2 will be set and running independently;

**Follow Mode:** Channel 2 will follow the current settings (Manual/Cycle/Sunrise/Sunset) as Channel 1;






## 8. Operation

### Screen Lock

To avoid false triggering during running, in the main screen long press  to lock the screen and will display . To unlock the screen, long press again until  disappears.



### Calibrating Temp./Humidity/CO<sub>2</sub>

Press  to enter the channel 1 or 2 to calibrate separately. Then Long press  for 3 seconds to enter the calibration setting. Press until the temp./ humidity/CO<sub>2</sub> values flashes. Press   to adjust the values and press  to confirm.

Note: Temperature/humidity/CO<sub>2</sub> calibration will be skipped if the sensor is not plugged in.



# 8. Operation

## 8.2 Light Control

MC2 smart controller provides two independent channels to control LED lights or HID lights.

### 8.2.1 Channel 1

Press any button to wake up the screen and press **CH** to enter the Channel 1 for following settings.

#### Main Light Settings

Press **☀** to enter the Main/UV/FR light type select. Press **⚙** to select Manual or Schedule mode. Press **✓** to confirm and enter the detail settings of Manual or Schedule mode.



## 8. Operation

### Schedule Mode (Detail Settings)

After selecting and confirm the Schedule Mode, the white bar will flash. Press  $\uparrow$   $\downarrow$  to set the dimming level and press  $\odot$  to confirm (dimming level can not be set to 0 or OFF in the Schedule mode). Then the Spectrum and white bar will flash. Press  $\uparrow$   $\downarrow$  to set the Spectrum level and press  $\odot$  to confirm.

Then the ON/OFF time setting will flash. Set the start time (ON AT) and off time (OFF AT) of each day by press. Press  $\odot$  to confirm and jump to the Sunrise/Sunset setting. Press  $\uparrow$   $\downarrow$  to turn on or off the Sunrise/Sunset function.

### About Sunrise/Sunset Mode

This function can simulate a more natural environment for plants to reduce pressure. If Sunrise/Sunset is on, light intensity will slowly increase/decrease to the setting level/OFF in 10 minutes when lights turn on/off everyday.



## 8. Operation

### Manual Mode (Detail Settings)

After selecting and confirm the Manual Mode, the white bar will flash. Press  $\uparrow$   $\downarrow$  to set the dimming level of lights in Channel 1 and press  $\checkmark$  to confirm.




Then the Spectrum and white bar will flash. Press  $\uparrow$   $\downarrow$  to set the Spectrum level and press  $\checkmark$  to confirm.

**Note:** The Spectrum adjustment function is only compatible with designated lights equipped with spectral tuning capabilities. Lights lacking this feature may disregard this setting.









# 8. Operation

## UV Light Settings

Press  to enter the Main/UV/FR light type select. Press  to select Manual or Schedule mode. Press  to confirm and enter the detail settings of Manual or Schedule mode.






## Schedule Mode (Detail Settings)

After selecting and confirm the Schedule Mode, the white bar will flash. Press   to set the dimming level and press  to confirm (dimming level can not be set to 0 or OFF in the Schedule mode). Then the ON/OFF time setting will flash. Set the start time (ON AT) and off time (OFF AT) of each day. Press  to confirm. Then Schedul 2 and OFF will flash press  to directly skip Schedule 2 setting or press  to select the Schedul 2 ON and Set the start time (ON AT) and off time (OFF AT) of each day.






## Manual Mode (Detail Settings)






After selecting and confirm the Manual Mode, the white bar will flash. Press   to set the dimming level of lights in Channel 1 and press  to confirm.


# 8. Operation

## FR Light Settings




Press  to enter the Main/UV/FR light type select. Press  to select Manual or Schedule mode. Press  to confirm and enter the detail settings of Manual or Schedule mode.




## Schedule Mode (Detail Settings)

After selecting and confirm the Schedule Mode, the white bar will flash. Press   to set the dimming level and press  to confirm (dimming level can not be set to 0 or OFF in the Schedule mode). Then Schedule 1 the ON/OFF time setting will flash. Set the start time (ON AT) and off time (OFF AT) of each day. Then Schedule 2 and OFF will flash. press  to directly skip Schedule 2 setting, or press  to select the Schedule 2 ON. and Set the start time (ON AT) and off time (OFF AT) of each day.

Press  to confirm.

## Manual Mode (Detail Settings)

After selecting and confirm the Manual Mode, the white bar will flash. Press   to set the dimming level of lights in Channel 1 and press  to confirm.

Then the Spectrum and white bar will flash. Press   to set the Spectrum level and press  to confirm.



# 8. Operation

## 8.2.2 Channel 2

Press any button to wake up the screen and press **CH** to enter the Channel 2 for following settings.

## 8.2.3 Auto Dim And Auto Shutdown

Auto dim/shutdown can be set to dim the lights when the temperature hits a certain value, and to turn off the lights if it reaches shutdown temperature.

**Note:**The Auto Dim and Auto Shutdown functionalities are exclusively configurable for the main lights.

### Setting Auto Dim

Press any button to wake up the screen and press **CH** to enter the Channel 1 or Channel 2 screen. Press **☀** to enter Main light set screen. Long press **☉** to enter the Auto Dim and Auto Shutdown setting. Press **↑** **↓** to turn on or off the Auto dim. Press **☉** to confirm. If you choose to turn on, then set the trigger temperature by press **☉** to confirm. The lights will be dimmed to 50% of the current setting when the temperature of the same channel reaches the setting value.

**Note:** The Auto temperature setting range is 30°C/86°F to 90°C/194°F and cannot be set higher than the Auto Shutdown temperature. The auto dim function will continue to dim the lights until the environmental temperature drops to 0.5°C/0.9°F below the auto dim temperature and stay for 30 seconds.

It is important to set an appropriate trigger temperature and leave enough buff range according to your growing environment and HVAC capacity. Set the temperature at least 2°C/3.6°F above the setting value of your temperature control system



## 8. Operation

---

### Setting Auto Shutdown

After finish the Auto Dim setting, The system will transition to Auto Shutdown setting. Press  $\uparrow$   $\downarrow$  to turn on or off the Auto Shutdown. Press  $\odot$  to confirm. If you choose to turn on, then set the trigger temperature by press  $\odot$  to confirm. The lights will be shutdown when the temperature of the same channel reaches the setting value.



**Note:** The default auto shutdown temperature is set from 32°C/90°F to 92°C/198°F. If auto shutdown is occurred, a manual reset is required. Auto shutdown will not cut off the power of the lights.

## 9. Warranty

---

The company warrants the mechanical and electronic components of this product and guarantees the materials and workmanship free of defects if used under normal operating conditions, for a period of three (3) years from the original date of the purchase.

If you find that there are any defects with this product that relate to either the workmanship or the materials but are not due to improper use or user error, the company shall, at its discretion, either replace or repair the product using the appropriate new or reconditioned parts. In the case that the company decides to replace the entire product, the date of the limited warranty shall apply to the replacement from the date of the purchase of the initial product for three (3) years.

# MC2 Controller

---

