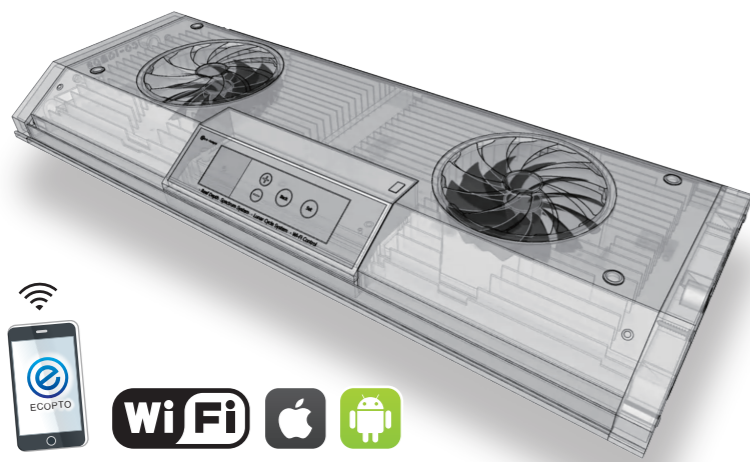


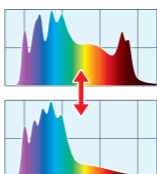
# SPECTRA SP200 USER'S GUIDE



## Feature

- Reef Depth Spectrum 0-30M Easy Setting (Keep the Wavelength Intensity)
- Uniform PPF Distribution (New V-Beam Reflector)
- Real Lunar • Thunder • Smartphone APP (iOS/Android)
- Router Connection • WiFi Synchronous • OLED Operation
- Variable Drive (1-2-3W) • Big FAN & FAN Cover
- LED×70 Emitters (74Chips) • 8 Channel Independence Dimmable
- Thermal Protection (Abnormal Temperature Detection & Emergency Stop)

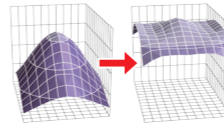
### Feature 1 Reef Depth Spectrum 0-30M Easy Setting (Keep the Wavelength Intensity)



Regardless of the mode, using "Simple Dimming" allows you to easily set a realistic underwater spectrum at 1M intervals without the need for complex channel dimming by simply selecting a water depth of 0 to 30M. This makes it easy to reproduce the light environment of a wide range of photosynthetic organisms from freshwater to coral reefs. In addition, Power % is automatically assigned to maintain the peak wavelength intensity over the entire depth of the water, thus preventing the water depth and light intensity from reversing. Of course, with "Expert Dimming", dimming can be set for each wavelength.

### Feature 2 Uniform PPF Distribution (New V-Beam Reflector)

By adopting a "newly developed V-beam reflector", "uniform distribution characteristics of light intensity" have been achieved in a high level. This eliminates unevenness in the amount of light around and directly under the lighting, overcoming the weaknesses of conventional machines, where the coral directly under the lighting burns and the surrounding area falls short of the amount of light.



### Feature 3 Real Lunar & Thunder

Realistic phenomena can be reproduced with the "Lunar function" that can set the moonlight effect from full moon to new moon and the "Thunder schedule function" that can set up to 3 lightning effects. In both cases, the water depth spectrum can be set.

### Feature 4 Smartphone APP

High-functional smartphone APP "ECOPTO-SP" that realizes graphical operation is available for iOS and Android. Available from APP Store / Play Store.

### Feature 5 Router Connect & WiFi Synchro

In addition to general "Direct WiFi", "Router WiFi" that can be used simultaneously with the Internet is also available for WiFi communication between the smartphone and the device. It also has a sync function using WiFi communication.

### Feature 6 OLED Operation

All functions that can be operated with a smartphone APP can be directly operated on the OLED panel of the main unit. Therefore, even if there is no smartphone, all functions can be operated on the main unit.

### Feature 7 Variable Drive (1-2-3W)

The drive power of the LED emitter can be switched to 3 levels of 1W / 2W / 3W, so the light intensity can be varied in 3 levels without changing the setting of the dimming timer or the installation height.

### Feature 8 Big FAN & FAN Cover

Two large fans responsible for heat dissipation of up to 200W are installed on the top, preventing the intrusion of salt from the water surface, reducing the failure rate, and the fan cover preventing dust ingress is removable so it can be washed with water.

## Product Specifications

Model	SPECTRA SP200	Operation	Main unit APP(Android/iOS)	
Size/Color	18 inch / Black, Silver	Mode	Auto Manual Thunder Demo (Synchro)	
Power Consumption	200W (max)	Depth	0~30m (1m Step) ※Adjustable	
Power Source	AC100-240V 50/60z	Wavelength Accuracy (8 Channel)	UV 405~410nm Violet 430~435nm DeepBlue 450~455nm Blue 470~475nm Cyan 495~500nm DeepRed 660+680nm CoolWhite 7000~8000K NeutralWhite 4000~4500K	
Size	W470×D200×H41mm		Monitor	OLED Panel
Weight	2.9 kg (GROSS 5.5 kg)		Enable Switch	UV DeepRed
LED Emitter	Cree LITE-ON Epileds	Radio waves	WiFi IEEE802.11b/g/n	
Beam Angle	80° V-Beam Reflector	Variable Drive	1W(70W) 2W(140W) 3W(200W)	
MIC	R206-000519(Japan)	Natural Effect	Depth Spectrum Lunar Thunder	
Safety standard	PSE(Japan)	Accessories	Stand-kit Wire-kit	

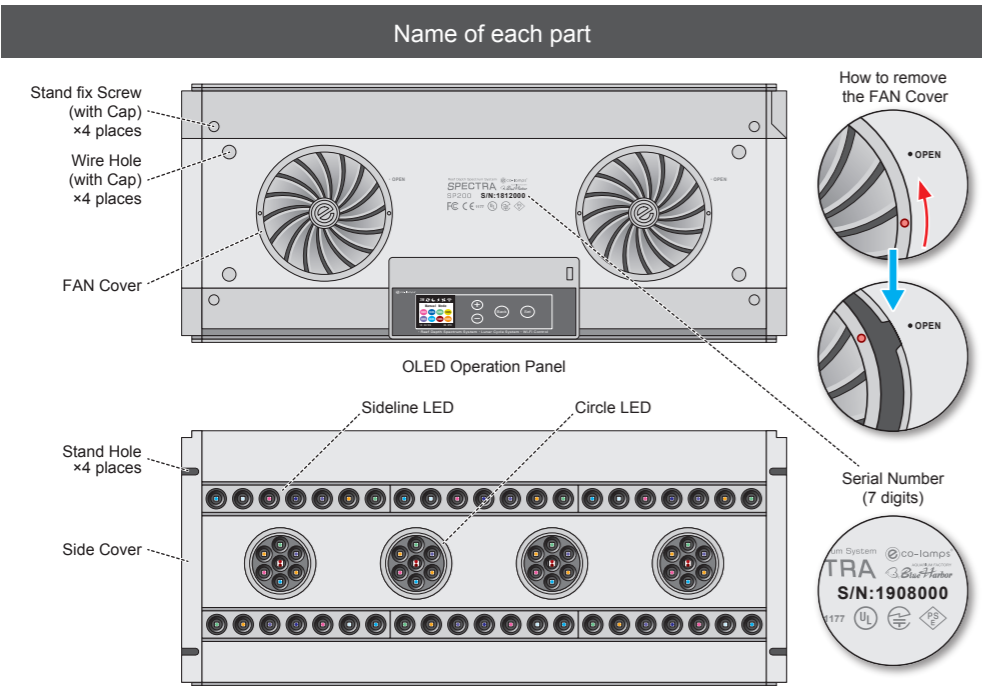
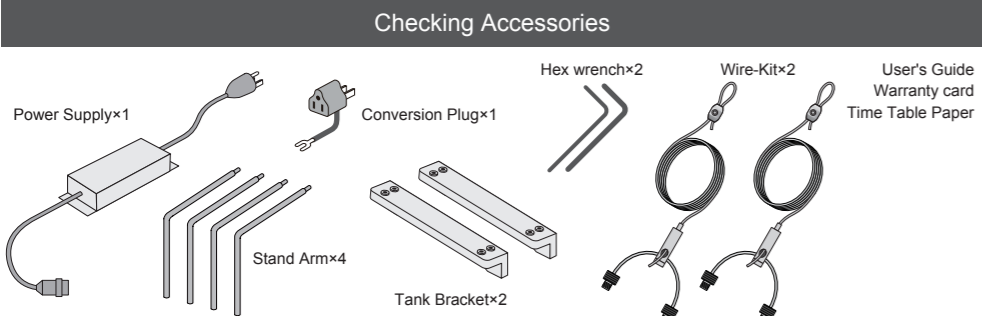
※Product specifications are subject to change without notice.

## Default Setting (Factory Setting)

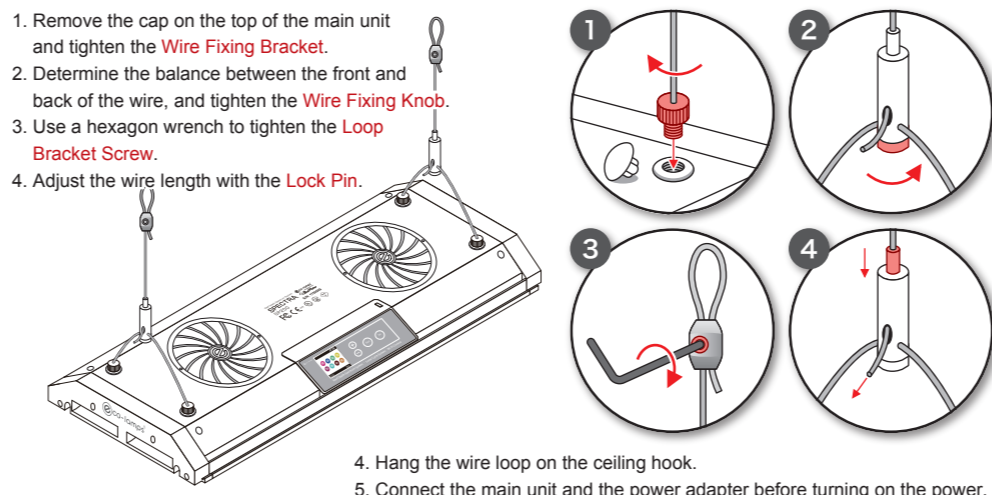
Point	Auto Setting Initial Value			Default Value for each Setting Menu	
	Time	Power	Depth	Manual Setting	
				-10M	100%
Point 1.	05:00	00%	-15M	Auto Setting	Default
Point 2.	07:00	30%	-15M	Lunar Setting	OFF 2019/01/01 18:00
Point 3.	08:00	60%	-10M		06:00 10% 10% -10M
Point 4.	10:30	85%	-10M	Thunder Setting	OFF 2019/01/01 3
Point 5.	13:30	85%	-5M		06:00 4 10% -10M
Point 6.	16:00	60%	-10M	Option	UV : ON
Point 7.	17:00	30%	-10M		DeepRed : ON
Point 8.	19:00	00%	-15M		2W Drive



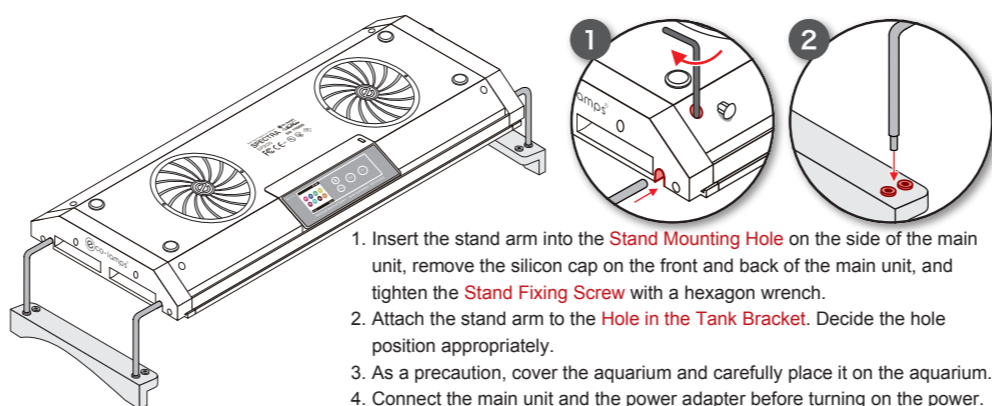
- [1] Checking Accessories
- [4] Name of each part



## Installation method 1. When hanging from the ceiling using a wire.



## Installation method 2. When installing in a water tank using a tank bracket.



## Precautions for installation

- ⚠ Be sure to connect the main unit and the power adapter before turning on the power.
- ⚠ Never connect or disconnect the power plug with wet hands.
- ⚠ Be sure to remove the power plug before installing. Also, be sure to cover the water tank when installing.
- ⚠ This product is for indoor use only. Never use it outdoors.
- ⚠ This product is not waterproof, so do not use it in an abnormally high humidity environment. Also, install it so that it will not be exposed to water in the aquarium. If it gets wet, wipe it off immediately. Cover the aquarium if necessary. Also, never place a wet object on the top.
- ⚠ This product requires air permeability around it for heat dissipation. When enclosing the surrounding area, be sure to provide a vent and ventilate with a fan. Never use the product in an enclosed space or at high temperatures (above 35°C). In addition, this product exhausts with a fan for heat dissipation, so do not block the fan cover or the front / rear / right / left exhaust ports.

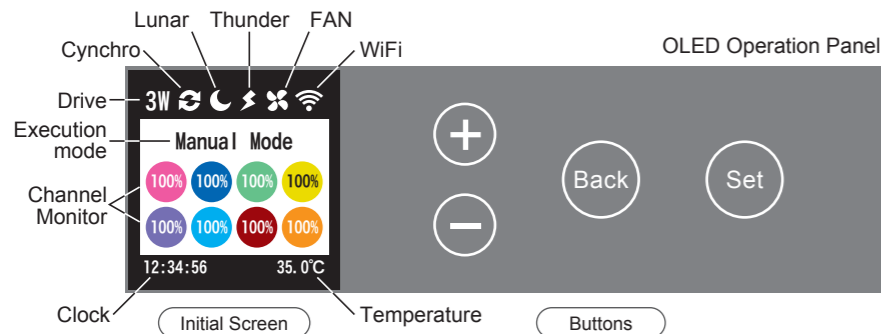
## Handling precautions

- ⚠ Unplug the power plug when working on the aquarium.
- ⚠ Since this product is a precision instrument, do not subject it to strong impact or drop it.
- ⚠ Since this product gets hot during operation, be careful not to get burned during operation.
- ⚠ Use a vacuum cleaner to periodically remove the dust from the fan cover. The fan cover can be removed and washed.
- ⚠ If the main unit is in off mode and the LCD screen is flashing, it is due to thermal protection. Improve the dust accumulation on the fan cover, the ambient temperature and air permeability, and then press any button to recover.
- ⚠ This product's LED light is very strong and contains a lot of blue light and ultraviolet light components that adversely affect vision, so do not stare at the light. There is a risk of vision loss and blindness.
- ⚠ Do not place the product on the floor or block the light-emitting surface while the product is on. If the light-emitting surface is blocked, it becomes very hot, causing obstacles and the lens cover to melt or burn, and in the worst case, may cause a fire.
- ⚠ Do not disassemble or modify this product. It may cause accidents, injuries and malfunctions and will void the warranty. If repairs are necessary, be sure to ask the store where you purchased the product.
- ⚠ In the unlikely event that this product fails or malfunctions, stop using it immediately and ask the place of purchase for inspection and repair. If you continue to use it as it is, the symptoms will worsen and it may cause a serious failure.

## Contact Us

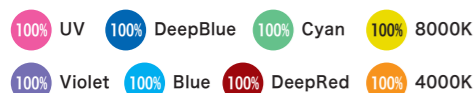
If you have any inquiries regarding malfunctions, or repairs, please contact the place of purchase.

Operation method: Execution mode / Menu selection



- ※ The screen automatically turns off after 5 minutes of inactivity (to prevent screen burn)
- ※ If the screen flashes, check the temperature of the main unit. If it is hot, read [6] Handling precautions and take appropriate action. If there is no abnormality in the temperature, press any button to restore it and watch the situation (possibility of malfunction)

Channel content



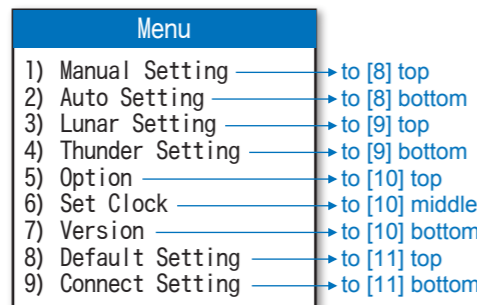
Operation 1 Execution mode

Press (+) (-) on the initial screen to switch modes.

- Auto Mode** Auto program execution
- Manual Mode** Forced lighting
- Demo Mode** Demo operation
- Thunder Mode** Lightning demonstration
- OFF Mode** Lightnig stop

Operation 2 Menu selection

Press (Set) on the initial screen. Select the item with (+) (-) and press (Set).



To return to the initial screen, press (Back).

[7]

[10]

Operation method: Option setting

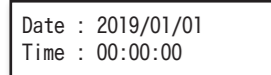
Option Setting Menu



Use (+) (-) to items move or values up/down, and (Set) to select or decide. By changing "Drive", you can increase or decrease the overall light intensity in 3 steps without changing the installation height or dimming settings of the main unit. In addition, only "UV" and "DeepRed" can be temporarily stopped without changing the dimming setting.

Operation method: Clock setting

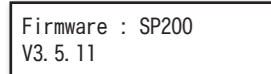
Clock Setting Menu



Use (+) (-) to items move or values up/down, and (Set) to select or decide. Set the date "Date" and time "Time".

Operation method: Version information

Version Information

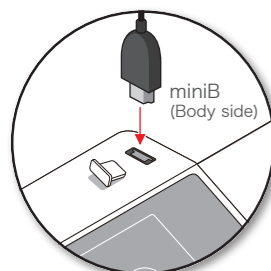


You can update the firmware by connecting SPECTRA to a Windows or Mac computer with a miniB USB cable.

1. If you turn on the power while pressing (Set) on the main unit, it will start in storage memory mode. ※ The screen remains dark. ※ Charging cable is not available.
2. Connect the main unit and the computer with a mini USB cable.
3. If it is recognized as an external memory, copy and save the latest firmware file in it and disconnect the USB cable.
4. Unplug the power plug of the main unit, wait about 5 seconds, and then turn on the power again, the firmware will be automatically rewritten.
5. After starting, check if the version information has been updated. (If it does not update, check the file and try again)

\* Contact the shop of purchase for the latest firmware.

※ Windows7/MacOS10 or higher recommended

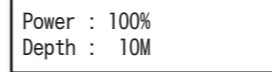


Operation method: Manual Setting

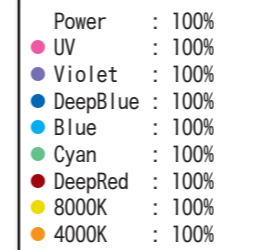
Dimming method selection



→ 1 Simple Dimming



→ 2 Expert Dimming

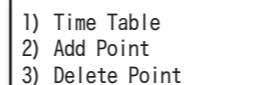


Use (+) (-) to items move or values up/down, and (Set) to select or decide.

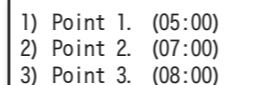
- ※ When changing the water depth with Simple Dimming, the Power % is automatically optimized by the wavelength intensity holding function, so adjust the power later if necessary.
- ※ If the optional UV or DeepRed enable switches are OFF, they will not light even if adjust it.

Operation method: Auto setting

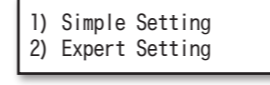
Auto Setting Menu



1 Timetable selection →



Point selection → Dimming method selection

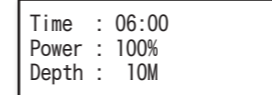


Use (+) (-) to items move or values up/down, and (Set) to select or decide.

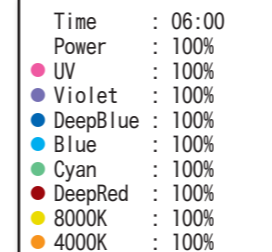
1. Repeat operation for all stages.
2. Use "Add Point" to add a stage.
3. Use "Delete Point" to delete the stage.

- ※ Points are always sorted in order of time, and if you change the time, it will be easy to lose sight of the point you just operated. Therefore, after creating a schedule in a separate timetable in advance, once deleting all existing points with "Delete Point", and adding points in order of earlier time with "Add Point" is certain, work is sure.
- ※ When changing the water depth with Simple Dimming, the Power % is automatically optimized by the wavelength intensity holding function, so adjust the power later if necessary.
- ※ If the optional UV or DeepRed enable switches are OFF, they will not light even if adjust it.

→ 1 Simple Dimming



→ 2 Expert Dimming



[8]

[11]

Operation method: Default setting

Default Setting



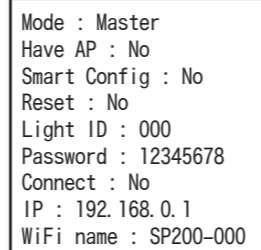
Use (+) (-) to items move or values up/down, and (Set) to select or decide. Setting "Reset" to Yes will reset to the factory default.

See [3] Default settings (factory default settings) for the default settings (factory default settings).

- ※ If you reset while using the smartphone APP, the WiFi connection will be disconnected during the restart. If it does not connect automatically, operate the smartphone to reconnect.
- ※ If you reset when the connection settings are changed, there may be cases where the WiFi connection cannot be restored due to changes in the light ID or IP address. In that case, review the connection settings as necessary and reconnect the smartphone.

Operation method: Connect Setting

Connect Setting Menu



Use (+) (-) to items move or values up/down, and (Set) to select or decide.

Operation 1 Confirm WiFi name and password

At first, "Last 3 digits of serial number" is registered in "Light ID". And WiFi name is "SP200-" + "Light ID". In addition, "12345678" is registered in "Password". Any of these can be changed freely.

Operation 2 Sync setting method (Synchronizing multiple units)

- Slave unit Connect Setting** (No setting is required on the Master unit)
1. Set "Mode" to Slave.
  2. Register the Light ID of the Master unit in "Light ID".
  3. Set "Connect" to Yes.

※ It may take a few seconds to start synchronization. If it does not sync well, check the Light ID and try "Connect" → Yes again.

**Canceling way the synchro setting** ⚠️ Required to return to normal WiFi connection

1. Change "Mode" back to Master.
  2. Register any number in "Light ID".
  3. Set "Connect" to Yes.
- ※ If you cannot connect to your smartphone with WiFi, try "Connect" → Yes again.

"Smart Config" "Reset" "Connect" These items return to No after Yes execution, but it is not abnormal.

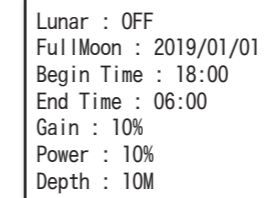
The sync function can synchronize up to 5 units including the master unit and slave units. ※ A smartphone is also counted as 1 unit.

If "Reset" → Yes is tried when WiFi connection is not successful, because "Light ID" will be reset, resetting is required.

If the IP is 0.0.0.0, because IP acquisition has failed in the previous operation, so retry the operation.

Operation method: Lunar Setting

Lunar Setting Menu



Use (+) (-) to items move or values up/down, and (Set) to select or decide.

1. Execution starts when "Lunar" is set to Auto or Manual. (Auto: As calendar / Manual: Specify full moon date)
2. It can be set to "Fullmoon" only when Manual.
3. Set the start time "Begin Time" and end time "End Time".
4. Set the gain (fine adjustment factor) to "Gain".
5. Set "Power" and "Depth".

When Gain & Power : 10% (initial value)

- Moonlight per Lunar cycle  
Fullmoon = 10% × 10% × 100% = 1%  
Halfmoon = 10% × 10% × 50% = 0.5%  
New moon = 10% × 10% × 0% = 0%
- Moonlight Illuminance per Drive  
3W Drive = 50~160 lx  
2W Drive = 30~100 lx  
1W Drive = 20~70 lx

■ Realistic moonlight example  
Under the conditions on the right, the illuminance at a distance of 30cm is approximately 1lx (full moon).

Drive 3W	Gain 1%	Power 3%	Depth 0-30M
Drive 2W	Gain 1%	Power 5%	Depth 0-30M
Drive 1W	Gain 1%	Power 7%	Depth 0-30M

- ※ Values less than 1% are displayed on the OLED in ".99%" format. Note that when approaching 0.01%, some LED elements will fall below the current that can be lit and will not light.
- ※ Lunar Setting is executed in preference to Auto Setting.

Operation method: Thunder Setting

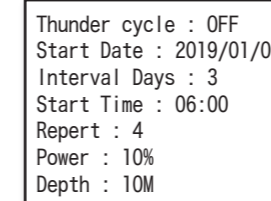
Schedule Selection



Use (+) (-) to items move or values up/down, and (Set) to select or decide.

1. Select "ADD1".
  2. Execution starts when "Thunder cycle" is set to ON.
  3. Set the execution start date in "Start Date".
  4. Set the execution interval days in "Interval Days". (0: every day)
  5. Set the execution start time in "Start Time".
  6. Set the number of repetitions to "Repert". (2-4 blinks per time)
  7. Set "Power" and "Depth".
- By adding 3 Thunders of ADD1~3, you can produce more complex Thunder effects.

Thunder Effect Menu



※ Thunder Setting is executed in preference to Lunar Setting.

[9]

[12]

Operation method: Smartphone APP



ECOPTO-SP



1. Install "ECOPTO-SP" from APP Store or Play Store.
2. Open the Connect Settings of SPECTRA and check the WiFi name and password.
3. Open the smartphone's WiFi screen and tap the WiFi name to connect with a password.
4. Start ECOPTO-SP and perform operations.

- ※ It does not support 5GHz band WiFi (11ac / n / a). Please use the 2.4GHz band (11b / g / n).
- ※ If authentication fails with a WiFi connection, check the password and try to connect again.
- ※ If the WiFi connection between the smartphone and the device does not work, try "Connect" → Yes or "Reset" → Yes in the connection setting of the device or "Reset" → Yes in the default setting.

Operation 1 Other than Connect Settings APP has the same operability as the main unit, and the graph is easy to see and use.

Operation 2 Operations way on the Connect Setting screen

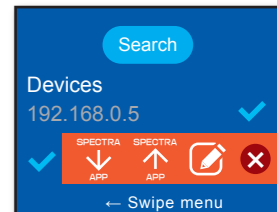
**Normal WiFi connection** When operating with direct WiFi connection

1. Set the main unit's Connect Settings as follows.  
"Mode" → Master "Have AP" → No \* These are initial values
2. Set "Direct WIFI" to ON. ("Router WIFI" will be OFF)



**WiFi connection via Router** When operating with a WiFi connection via a Router

1. Connect your smartphone to your router in advance.
2. Set "Router WIFI" to ON. ("Direct WIFI" will be OFF)
3. Tap Search and enter your router password.  
(The search for the device starts via the router...)
4. Set "Have AP" and "Smart Config" to Yes in the main unit Connect Setting. (Start syncing with smartphone via router ...)
5. If synchronization is successful, Success! Is displayed on the main unit, and the IP is added to the connection list "Devices" in the APP.
6. When it swipes the added IP to the left, it can change the device name, and more it can upload / download settings.



※ If synchronization fails, make sure "Mode" is Master and try again. If that doesn't work, try "Connect" → Yes, or try "Reset" → Yes and try again.

**Canceling WiFi connection via router** ⚠️ Required to return to normal WiFi connection

1. Set "Direct WIFI" back to ON. ("Router WIFI" will be OFF)
2. Return "Have AP" to No in the Connect Setting of the main unit.