LCUV LED Spot Cure System

SKU: 303175

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User Manual

**Please read this user manual carefully before using the product**

Content

1 UV LED SPOT Features

★ Small thermal radiation. It uses UV LED light-emitting components with 3W power and a spectral distribution ranging from 360nm to 405nm. It does not emit infrared light, so the surface temperature of the product being irradiated will not increase.

★ Emit high energy and high purity UV light. Using the latest high energy UV LED, quickly complete UV glue curing, greatly improve the production efficiency.

★ Reduce the cost of consumables. The life cycle of LED is more than 20000 hours, while the traditional LAMP needs to replace the lamp after working for about 2000 hours. LED-UV adopts cable output mode without optical fiber. This can reduce the cost and improve the utilization rate of equipment.

★ Energy saving and environmental friendly. The LED has low power consumption, and it can instantly reach 100% high power without preheating. Photoelectric conversion is efficient and does not contain the toxic mercury, nor does it produce ozone. It is a safer and more environmentally friendly alternative to traditional lamp.

★ Small size design. The volume of the LED controller is about 1/8 of the traditional lamps', which makes installation easier. Small irradiation head design, fully consider the space requirements of precision production, make the installation more convenient.

★ The device can be used in different processes. Users can choose external extension cables according to actual needs.

★ Unique fan heat dissipation. It can quickly discharge the heat of the chip, improve the stability and extend the life cycle of LED.

★ One controller can control 4 LED illumination heads independently or synchronously at the same time.

- Universal design, LCD display, intuitive operation

- Fixed power, step power, perfect embodiment

- Pedal control, manual /automatic

- I O signal, with PLC automatic production process

- COM for convenient peripheral communication

- Irradiation power time countdown digital display, intuitive and convenient to understand the process of irradiation

- Parameter Settings on screen are locked to prevent improper press

- Automatic retrieval, error alarm tips

- Easy to check the UV irradiation process during irradiation

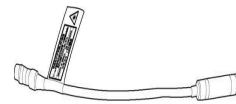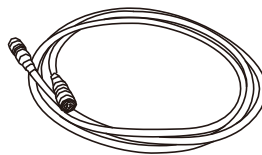## 2 Equipment Installation and Connection

1）Product parts
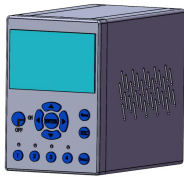
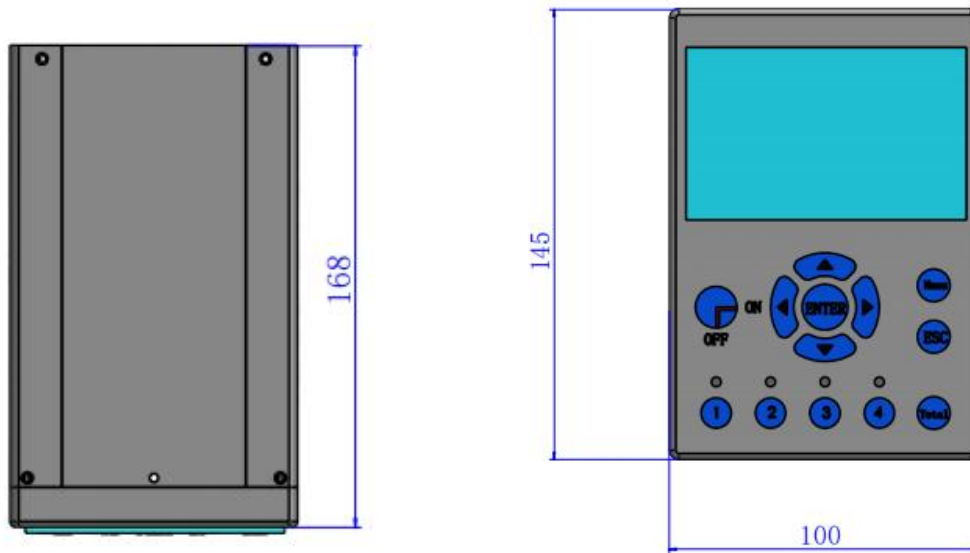Controller   DC Adapter   UV LED irradiation head

Manual   **cable**   **Pedal**

2）UV LED Curing System parts name and function：

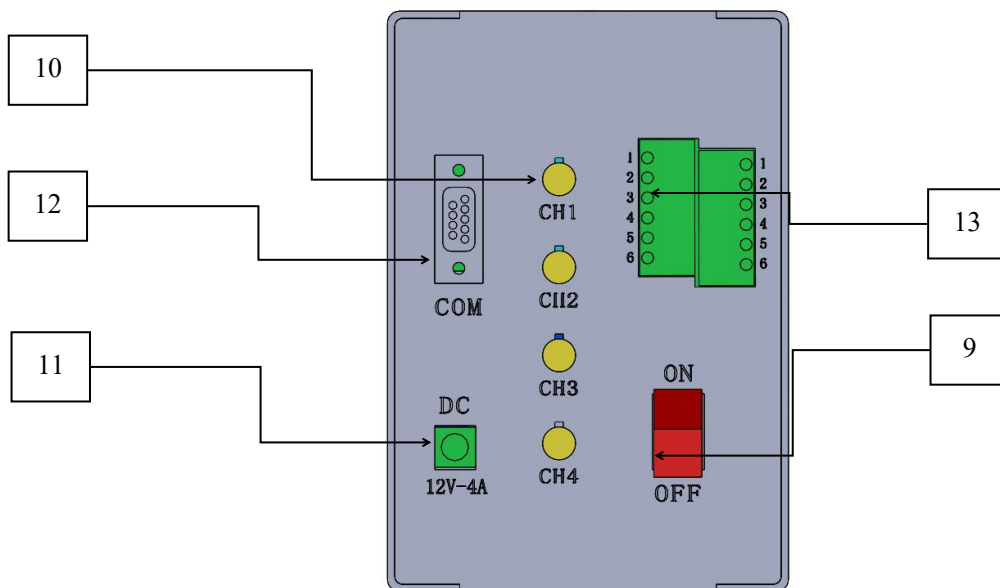## Controller

Item	Name	Function
1	Menu	Home menu display, auxiliary channel illumination mode setting
2	Enter	Selection and determination of project parameters for the setting process
3	Esc	Cancel the setting and return to the previous operation interface
4	Direction buttons	Cursor movement and value change
5	Irradiation keys （1、2、3、4）	Start or stop UV LED lamp irradiation corresponding to the button channel, and query selection during the irradiation process in the corresponding channel
6	Key	Open or lock screen parameter setting
7	Total	Start or stop UVLED lamp irradiation for four channels
8	Indicator light	Detect whether the UV irradiation head is connected normally, and indication of the UV LED irradiation start or stop
9	Power	Controller power on or off
10	Irradiation head connection port	Connect the UV LED irradiation head

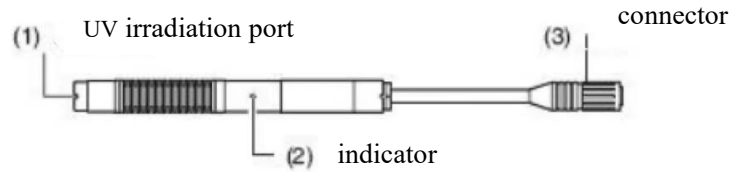|	(CH1/CH2/CH3/CH4）	
11	DC socket	Connect DC Power
12	RS-232C Connection （COM）	Connect peripheral communication to control the controller
13	Input and output IO ports	Connect a pedal or PLC programming to control UV irradiation

Front
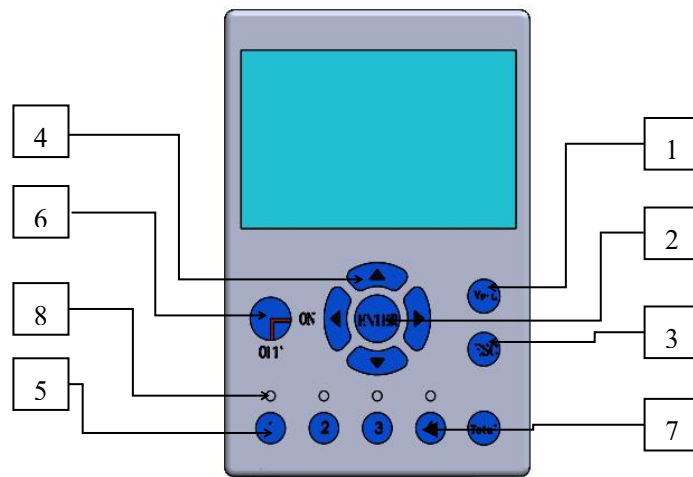
Back

Irradiation head

Irradiation head connection

Align the connector on the back of the controller connected to the concave and convex surface of the irradiation head connector, and then push the back half of the connector to insert, and the front panel indicator lights up in yellow. When pulling out, please pinch the top half of the irradiation head and pull out slightly, the indicator light is off.

The connection of the computer signal

Connect the computer signal cable to the COM interface of the controller

Pedal connection

The number 1-4 port indicates the pedal port of the controller's 1-4 channel illumination head, each port corresponds to the corresponding channel, such as port 1, there is a wiring hole to the left and right of port 1, press the button next to it, insert the pedal connection cable respectively, and release the button.

AC/DC adapter connection

Connect the power adapter connector to the DC socket port on the back of the controller

3 Basic operation and setting of equipment

Startup and shutdown

To start up, please turn on the power first, turn on the switch at the back of controller, then you can set up or irradiate.To shut down, please turn off the UVLED light channel first, then turn off the switch at the back, and unplug the power supply.

Function and operation

Start the power switch, and the product logo will appear on the screen, as shown in Figure 1. Wait a few seconds, and the main menu will be displayed: control mode set, light mode set, view set, and system set, as shown in Figure 2.
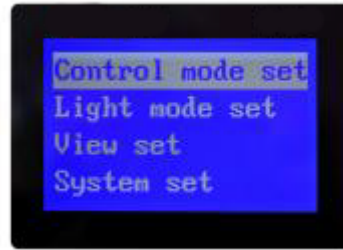

Figure 1   Figure 2

Parameter setting can only be carried out when UV irradiation is not turned on, you can set personal needs by "Menu + direction buttons + OK + Esc", press the "Esc" button will return to the previous menu, press the "Menu" button will directly return to the main menu. Enter the setting state, select with the "↑" and "↓" buttons, set with the "OK" button.

" Control mode set " is mainly to set the control mode, which mainly has the following functions: total button set, one button set, and pedal set.

" Light mode set " is mainly used to set the irradiation mode, which mainly has the following functions: fixed irradiation power and time setting, stepped irradiation period and power setting, total irradiation time query, channel switch.

" View set " mainly queries the parameters set for each channel.

" System set " is used to set the buzzer, standby time, language, and factory reset.

1）Control Mode Set

After pressing "Menu", select "Control Mode set" and press "OK" to enter the next interface. Total button set, one button set and pedal set will appear, as shown in Figure 3. You can select them by direction buttons and press "OK" to enter respectively, as shown in Figure 4 and Figure 5.

Figure 3   Figure 4   Figure 5

Can be set valid or invalid by the "total button set", can be set valid or invalid by the "one button set", can set pedal control by the "pedal set", manual control or auto control through the up and down buttons, pedal controls one channel or four channels .

The factory default setting is: the "total button set"is valid, the "one button set" is valid, the "pedal set"is automatic control, and the pedal is one on one.

2）Light Mode Set

Press the "Menu" button, as shown in Figure 2, select "light Mode Set", press the "Enter" button to enter the next interface, four channel settings appear, as shown in Figure 6, you can use the up and down buttons to select the channel, press "Enter" button to enter as shown in Figure 7.

Figure 6   Figure 7

According to needs, you can choose "fixed power light" or "step power light"; you can only choose one of the two, "step power light" can be set to light with different powers in different time periods, divided into 20 steps in total. The length of time and the level of power can be set through the direction buttons and menu button; "channel switch" is used to set the channel on and off. "View total time" is to query the working time of the UV LED in this channel after leaving the factory. The factory default is

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"fixed power light", the power is 100%, the irradiation time is 10S, the channel is open, the "step power light" is invalid, and the power and time are zero.

（1）Fixed Power Light

Select "Fixed power light", click "Enter" and proceed as shown in Figure 8, you can choose to "view parameters", power and time settings, set it to valid and select "View Parameters", as shown in Figure 9, you can view the settings of the channel parameter. Select "power and time setting", as shown in Figure 10.

Figure 8   Figure 9   Figure 10

The cursor is blinking, and the power can be set from 0 to 100% through the four direction buttons. Press the "Menu" button, then press the up and down buttons, the cursor moves to the light time setting, and then press the menu button or the left and right direction buttons, the cursor blinks Then you can start to set the irradiation time, which can be set from 0 to 9999.9S. After setting, press the "Enter" button to return to Figure 9. Then press "Esc" to return to the previous interface, select "Set as valid", and Figure 8 will appear, and the setting of this item is completed.

（2）Stepped Power Light

For the same channel at the same time, only one of the "fixed power light" or "step power light" can be selected. If you choose "step power light", press "Enter" to enter Figure 11, and you can enter "view parameters" through the direction buttons as shown in Figure 12.

Figure 11

Figure 12

You can also choose "Step time set" to set the power and time of each stage, as shown in Figure 13.
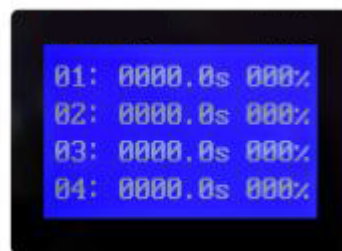

Figure 13

For the time and power of other steps, use the "menu" button, then press the up and down buttons and use the left and right direction buttons or "menu" to enter 20 different steps such as 02, 03, 04, 05, etc., to set the time and power respectively. The above settings are the same as the fixed power light setting method. Press "Enter" to return to Figure 11, and then press "Set as valid" to complete this setting.

（3）**Channel Switch**

As shown in Figure 7, select "Channel Switch", press the "Enter" button, select "Enable" to open the channel, and select "Close" to close the channel. Other channels 2, 3, and 4 can be set according to the above method, just press "Menu" to return to the main interface or press the "Esc" to return to Figure 5, and then start the setting.

3）View Parameters

Press the "Menu" button, select "View Parameters", press "OK" to see the light parameters set for the first channel, as shown in Figure 14, and then use the up and down keys to see the settings of each channel one by one. The total parameters of fixed power light are shown in Figures 15, 16 and 17.
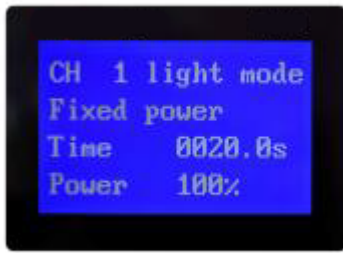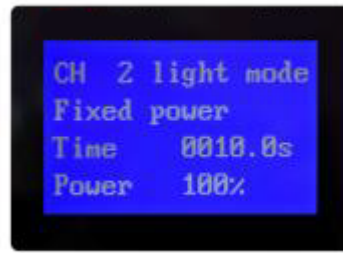
Figure 14

Figure 15

Figure 16

Figure 17

It is placed on the home page and is mainly convenient for the user to check the values set for each channel at any time.This function is only available during non-UV irradiation.

4）System Set

On the homepage interface, as shown in Figure 2, select "System Set", and the "Buzzer set", "Standby screen", "Language", and "Restore set" will appear as shown in Figure 18. Select "Buzzer Set", press "OK" to choose open or closure. Select the "Standby screen", you can choose to be always on, or you can set the time independently, set the time through the direction buttons, and then press "OK". Select the "Language" , there are two languages to choose from, Chinese and English, can be selected through up and down buttons and "OK" , the factory default is Chinese. Select "Restore set" to enter Figure 19.

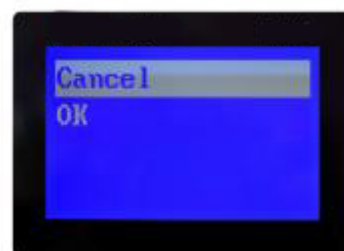Figure 18   Figure 19

You can choose to confirm or cancel. This item needs to be selected carefully. Once the selection is irreversible, the parameters need to be reset.

5）Irradiation Work

After setting, make sure that the controller and the irradiation head are connected well, and the indicator light of the corresponding channel turns yellow.

There are two ways to control the UV LED irradiation head. One is to use channel button and the total light button. Press the digital UV light button, the indicator light turns from yellow to red, the buzzer beeps for a long time, and the UV LED lamp of this channel starts to irradiation. During the lighting process, you can query corresponding channel irradiation by pressing the digital UV irradiation key, provided that the channel displayed on the LCD screen is not the channel you want to know. This item needs to be operated carefully. If the LCD screen has displayed the parameters of the channel you want to know, do not press the number button of the channel again. If you press the number button repeatedly, the UV LED lamp will be turned off. If the set time is up, the UV LED lamp will also be terminated, the indicator light will change from red to yellow, and the buzzer will make a short beep. It can also be controlled by the total light button, and all channels are opened and closed at the same time.

The second is to use a pedal. There are two ways of pedal control, namely manual control and automatic control. Manual control means that the process of lighting is completely controlled by the pedal. When you step on it, the lighting starts, and when you release it, it stops. Automatic control means that the process of lighting is carried out automatically according to the set time and mode. When "one-on-four" is selected, pedal 1 can switch channels 1 to 4, and pedals 2, 3, and 4 can still control the irradiation of channels 2, 3, and 4. When "one-on-one" is selected, each pedal controls the corresponding channel respectively. When "one-on-one" is selected, one pedal can also control two channels at the same time according to the user's needs. The method is that one pedal is divided into four-way connectors, two are connected in parallel, and two are connected in series.

The "buzzer set" has "ON" and "OFF". When it is on, the buzzer will beep once for a long time when the irradiation is started, and the buzzer will beep once for a short time when the irradiation is stopped. When an error occurs, the buzzer will alarm three times.

6）Inquiry Method

Query progress during UV irradiation

During the UV irradiation process, start each channel one by one, start the total irradiation, turn on pedal, and then start irradiation. If you want to query the progress of each channel during the process, you can press the digital UV light key to query the irradiation progress of the corresponding channel, provided that the channel displayed on the display screen is not the channel you want to know. This operation needs to be cautious. If the channel parameters you want to know are already displayed on the display, do not press the number button of the channel repeatedly, otherwise the corresponding UV light will be turned off.

Query parameters of each channel during non-UV irradiation

Directly press the "Menu" button, then enter "View Set", and then press the up and down buttons to query the currently set parameters. or enter "Light Mode Set", then enter each channel, and then you can select " View Parameters".

Query the total lighting time during non-UV irradiation

Press the "Menu" button to enter the "Light Mode Set", then select the channel at random, and then enter the "View Total Time", and you can see the UV irradiation time of each channel. If it needs to be cleared, press the "OK" again, enter the password, and select "OK" one by one according to the cursor prompt, and then clear it.

7）Error Prompt

(1) The channel is not connected to UVLED, when the channel is activated, there will be an alarm prompt.

(2) When the key is locked, the parameters cannot be set, if set, there will be an alarm prompt.

(3) When the UV LED is on, if there is an illegal operation, there will be an alarm

prompt.

(4) When the channel is in the closed state, there will be an alarm prompt when the channel is started (except for starting the total irradiation).

(5) When setting step irradiation of a channel has been completed, but UV irradiation process is fixed power irradiation, must check whether the step power of the channel is set to valid.

8）Restore Set

This item needs to be selected carefully. Once selected as unrecoverable, the parameters need to be reset. This product is factory set to:

(1) Control mode set: the "total button set" is valid, the "one button set" is valid, the "pedal set" is automatically controlled, and the pedal is controlled separately;

(2) Light mode set: "fixed power" is valid, the power of each channel is 100%, and the time is 10 seconds; "step power" is invalid, and the power of each channel is 0%, and the time is 0 seconds;

(3) System set: the buzzer is turned on, the screen is always on in standby mode, and the language is Chinese.

4 Peripheral connection
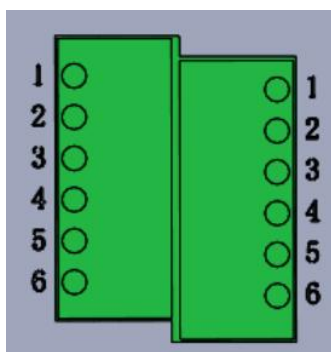
IO communication interface   COM communication interface
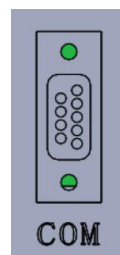
The IO communication is a double row of sockets, the left row of sockets is grounded and connected, and the right row of sockets is positive level, which is an independent interface. The numbers 1-4 are marked with the pedal port 1-4 channel of the controller. Each port corresponds to a corresponding channel. Ports 5-6 are used to output feedback signals, among which port 5 is the feedback signal of channels 1 and

2, and port 6 is the feedback signal of channels 3 and 4.

For example, port 1 has a wiring hole on the left and right sides, press the button next to it, insert the two connecting wires of the pedal respectively, and then release the button. If one pedal needs to control two channels at the same time, one pedal plug can be inserted into the port on the left row, and the other pedal plug can be inserted into the corresponding port on the right row. At the same time, lead a wire from this port and insert it into the channel socket on the right row that needs to be lit at the same time. For example, connect the No. 1 port on the left to the No. 1 port on the right, and then lead out a wire from the No. 1 port on the right and insert it into the No. 2 port on the right. In this way, the pedal control can be selected under the premise of manual or automatic control, choose discrete irradiation, and press the pedal , the UV LED lamps of channels 1 and 2 can be turned on at the same time.

The PLC programmer can connect the IO communication port according to the positive and negative level signals.

COM communication port, just choose RS-232 to plug in and connect.

4.1_232 Communication Protocol Description：

(1) RS232 Communication Protocol：
The UV LED controller adopts standard RS232 interface with a baud rate of 19200, no parity bit, 8 data bits,and 1 stop bit (19200 N 8 1).

(2) Register Description：

register address	Realize function
00	Local address default is "0" at the factory, (range: 1-255),which supports read/write
01	Start irradiation address (0: open all channels; 1: open channel 1; 2: open channel 2; 3: open channel 3; 4: open channel 4; 5: close the channel being irradiated)
02	Irradiation time for Channel 1 (range: 0-9999 seconds), setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100),which supports read/write
03	Irradiation time for Channel 2 (range: 0-9999 seconds), setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write

04	Irradiation time for Channel 3 (range: 0-9999 seconds), setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
05	Irradiation time for Channel 4 (range: 0-9999 seconds), setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100),which supports read/write
06	Irradiation power for Channel 1(range: 0-100%),which supports read /write
07	Irradiation power for Channel 2(range: 0-100%) ,which supports read/write
08	Irradiation power for Channel 3 (range: 0-100%) ,which supports read/write
09	Irradiation power for Channel 4 (range: 0-100%) ,which supports read/write
10	Irradiation mode for Channel 1 (0: fixed mode, 1: step mode)
11	Irradiation mode for Channel 2 (0: fixed mode, 1: step mode)
12	Irradiation mode for Channel 3 (0: fixed mode, 1: step mode)
13	Irradiation mode for Channel 4 (0: fixed mode ,1: step mode)
14	Time for Channel 1 Step 1 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
15	Time for Channel 1 Step 2 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if the setting is 10 seconds, the actual setting parameter is 100) ,which supports read/write
16	Time for Channel 1 Step 3(range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
17	Time for Channel 1 Step 4(range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
19	Time for Channel 2 Step 1 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
20	Time for Channel 2 Step 2 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
21	Time for Channel 2 Step 3(range: 0-9999 seconds,the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
22	Time for Channel 2 Step 4 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
24	Time for Channel 3 Step 1 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
25	Time for Channel 3 Step 2 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter

	is 100) ,which supports read/write
26	Time for Channel 3 Step 3(range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100),which supports read/write
27	Time for Channel 3 Step 4 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100),which supports read/write
29	Time for Channel 4 Step 1 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
30	Time for Channel 4 Step 2 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if the setting is 10 seconds, the actual setting parameter is 100) ,which supports read/write
31	Time for Channel 4 Step 3 (range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if it is set to 10 seconds, the actual setting parameter is 100) ,which supports read/write
32	Time for Channel 4 Step 4(range: 0-9999 seconds),the setting time needs to be enlarged by 10 times (if the setting is 10 seconds, the actual setting parameter is 100),which supports read/write
34	Power for Channel 1 Step 1 (range: 0-100%),which supports read/write
35	Power for Channel 1 Step 2 (range: 0-100%),which supports read/write
36	Power for Channel 1 Step 3 (range: 0-100%),which supports read/write
37	Power for Channel 1 Step 4 (range: 0-100%),which supports read/write
39	Power for Channel 2 Step 1 (range: 0-100%),which supports read/write
40	Power for Channel 2 Step 2 (range: 0-100%),which supports read/write
41	Power for Channel 2 Step 3 (range: 0-100%),which supports read/write
42	Power for Channel 2 Step 4 (range: 0-100%) ,which supports read/write
44	Power for Channel 3 Step 1 (range: 0-100%),which supports read/write
45	Power for Channel 3 Step 2 (range: 0-100%),which supports read/write
46	Power for Channel 3 Step 3 (range: 0-100%),which supports read/write
47	Power for Channel 3 Step 4 (range: 0-100%) ,which supports read/write
49	Power for Channel 4 Step 1 (range: 0-100%),which supports read/write
50	Power for Channel 4 Step 2 (range: 0-100%),which supports read/write
51	Power for Channel 4 Step 3 (range: 0-100%) ,which supports read/write
52	Power for Channel 4 Step 4 (range: 0-100%) ,which supports read/write

(3) The supporting command codes from UVLED controller：

03	Read function code: The read parameter is a hexadecimal number
06	Write function code: The written parameter must be a

	hexadecimal number

(4) The format of parameter read and write instructions：

1. Command format for modifying the UV LED controller address (hexadecimal)

For example: change address 0 to address 2.

(After the device address is modified, the controller needs to be restarted to take effect)

Device address	Function code	Register address		Data bit		CRC check	
00	06	00	00	00	02	08	0B

2. Command format for setting the output power of UV LED Channel 1 (hexadecimal).For example:set the output power to 50%

(Decimal 50 is converted to hexadecimal 32) If the device address is '0'

Device address	Function code	Register address		Data bit		CRC check	
00	06	00	06	00	32	59	DF

3. Command format for setting the UVLED controller's automatic irradiation time (hexadecimal)For example:Set the irradiation time to 10 seconds.

It needs to be enlarged by 10 times, which is 100 (100 in decimal is converted to 64 in hexadecimal) if the device address is '0'

Device address	Function code	Register address		Data bit		CRC check	
00	06	00	02	00	64	78	21

Note: For reading and writing other parameters, please refer to the above examples.

5 Warranty and precautions

1）Warranty：

Two years free warry

2）Precautions：

(1) Do not expose your eyes or skin to UV light directly, as it may cause damage.

(2) Do not disassemble the UV-LED irradiation head and controller, which may cause

UV light leakage and electrical leakage.

(3) When installing or removing the UV-LED irradiation head, please be sure to turn

off the power supply.

(4) When cleaning the irradiation head and controller regularly, please do not use

thinner, volatile oil, acetone, kerosene, etc., you can use a soft cotton cloth with a

small amount of ethanol, and wipe carefully.

(5) Please use this machine in a dry, ventilated environment without high magnetic field or high electric field.

(6) Please use the DC power adapter specially equipped by our factory.

(7) During the UV irradiation process, the parameters cannot be changed

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