SPDI UV High Intensity LED Linear UV Array

USER MANUAL

SKU: ARRAY-LED

UV Curing Surface Light LED Array

Thank you for purchasing our products, please read the instruction manual carefully before use

Contact Information:
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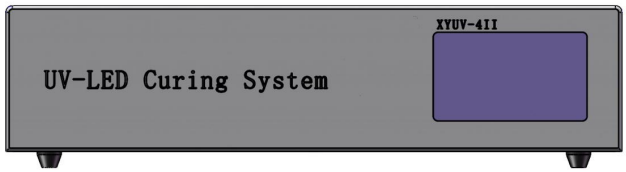
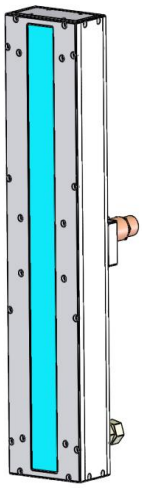
1. The main performance and parameters of the product

Dimensions	384*284*100（L*W*H）
Power Supply	Single-phase AC110V 60HZ
Control Type	MCU Control
UV LED Wavelength	395nm
Irradiation area	300*30mm
Optical power adjustment	1-100% Adjustable
Cooling Method	Water Cooling
Working temperature	-10℃--50℃
Working environment humidity	10%--80%RH No Condensation
Power consumption	1400W

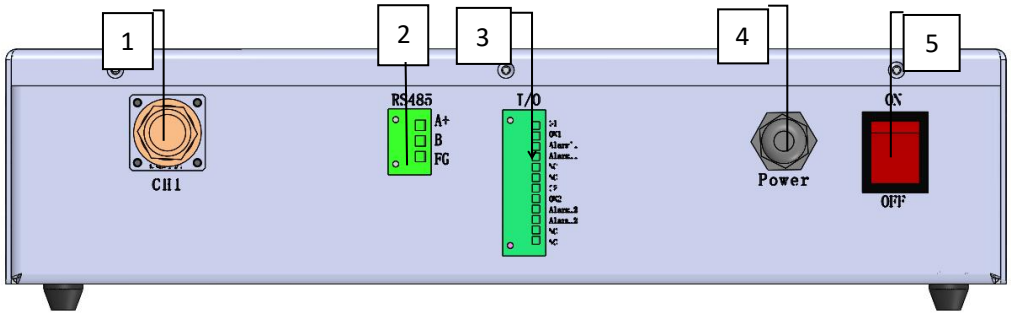
2. Equipment installation and connection

2.1 Product Composition





2.2 UV-LED Controller device name and function



Serial Number	Name	Function
1	UV LED Connector	UV LED Connection Port (Female)
2	RS485 Communication port	Port number, from top to bottom: A+ B- FG
3	Input/output IO terminal	1. Connect the foot switch or relay short circuit, to switch the UV lamp, and the alarm output signal is the relay short circuit signal 2. Port number: from top to bottom, a group of G1 and ON1, short-circuit the light-on signal; a group of Alarm1, Alarm1, an alarm output
4	External power input	Simplex AC110V 60HZ
5	Rocker switch	Host main power switch

2.3 UV-LED Light Source Connection

Align the connection port (female) of the light source on the back of the main controller with the convex and concave surface of the connector of the UV-LED light source (male), then push the back of the connector to insert

3. Equipment basic operation instructions

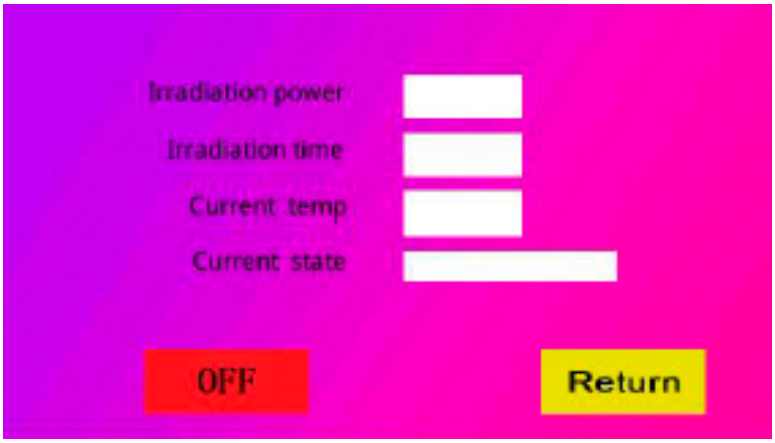
Before starting,turn on the water cooling system, then check if it is working correctly. To turn off the enire device first switch off the UV-LED light source, then switch off the main power supply, then switch off the water cooler, and remove the power supply.

Main interface	Display content
Control method	Manual control, Automatic control
Irradiation method	Time settings, total irradiation time, irradiation power and reset
Temperature monitoring	Set the temperature alarm and check the light source temperature in real time
System setting	Reset
Start to irradiate	Click the button to enter the irradiation interface
Irradiation parameters	View parameters such as irradiation power, irradiation time, and temperature alarm

3.2.1 Control method

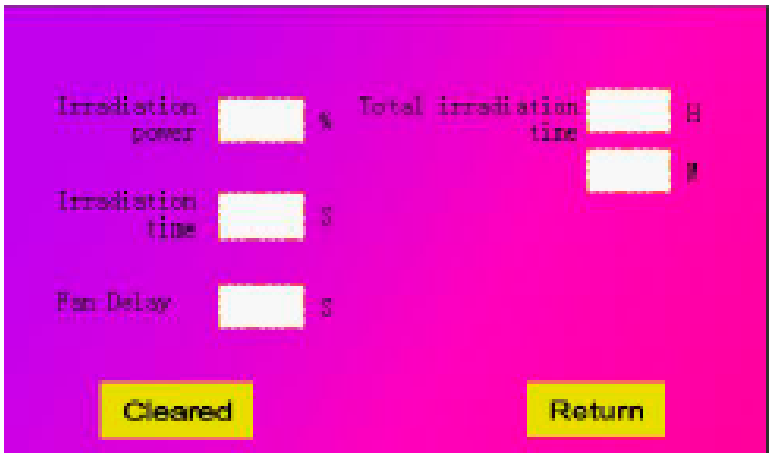
Control mode	Manual control: Click the button to start irradiation, it will work chronologically and cannot be controlled by timing
	Automatic control: Click the button to start irradiation, the countdown that determines when the device starts working will start

3.2.2 Parameters Settings



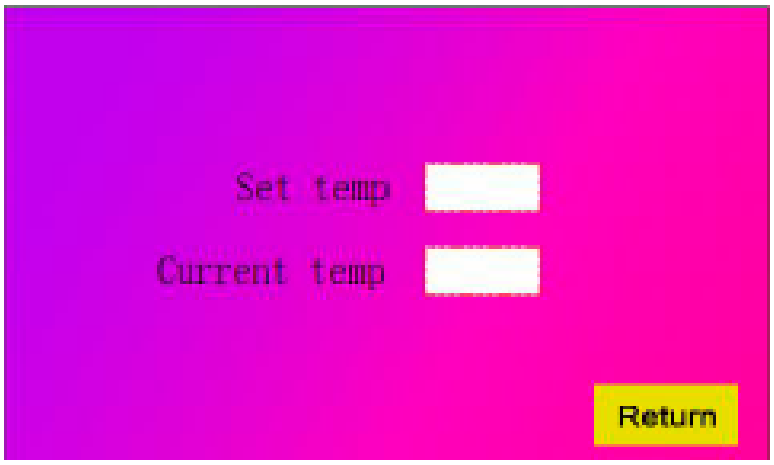
OFF Button	Start and stop buttons
Return Button	Click the "Return" button to return to the main interface and turn off the irradiation at the same time

3.2.3 Irradiation method



Irradiation power	Click the number in the space of irradiation power to pop up the input keyboard, enter the required value and click Enter to confirm
Irradiation time	Click the number in the irradiation time space to pop up the input keyboard, enter the required value and click Enter to confirm
Delay	Check for the fan to stop working after the UVLED is turned off
Total exposure time	The total irradiation time can only be displayed and cannot be modified. The original factory password is required to reset it, and the user cannot reset it

3.2.4 Temperature monitoring



Set temperature	Click the number in the set temperature space to pop up the input keyboard, type in the value you need and click Enter to confirm. The default setting value is 65°C
Current temperature	Real-time display of the UV-LED light source temperature. When the current temperature exceeds the set temperature, the UV-LED light source will stop working and issue an alarm signal

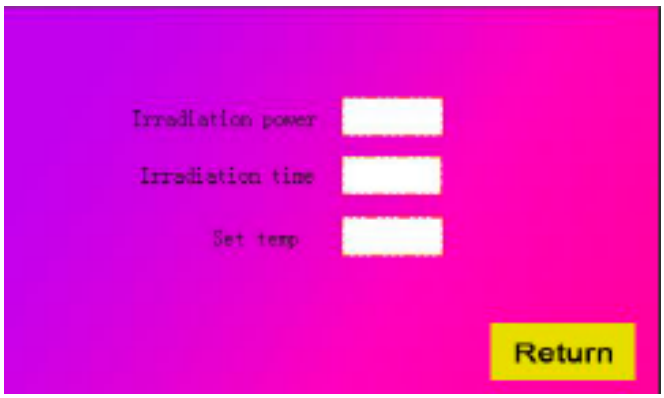
Password: 123456, non-professionals should not modify the parameters

3.2.5 System Settings

Reset	Click 'restore to factory settings' to restore the original factory data: the irradiation power is 80%, the irradiation time is 60s, and the temperature monitoring is set to 65°C
Temperature calibration	Manufacturer parameters, please do not modify

3.2.6 View irradiation parameters

Click "View Irradiation Parameters" button on the main page to display irradiation power, time, and alarm temperature.

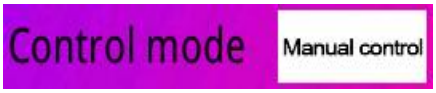


3.2.7 High temperature default alarm

When the UV-LED light source is running, if the temperature of the light source is higher than the set temperature, the light source will automatically turn off and an alarm signal will be sent. Once the temperature decreases, the alarm signal will be automatically released.

3.2.8 Operation guide

<table>
<tr><td rowspan="4">Automatic Contrrol</td><td>1. Click 

select 

Switch to automatic control 

, and then click "Return"</td></tr>
<tr><td>2. Click 

input parameters 

then click "Return"</td></tr>
<tr><td>3. Click 

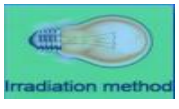
click 

to start irradiating</td></tr>
<tr><td>The UVLED lights up and turns off automatically after a 10-second countdown. You can also click 

to turn it off manually</td></tr>
<tr><td rowspan="4">Manual Control</td><td>1. Click 

select 

Switch to manual control 

then click "Return"</td></tr>
<tr><td>2. Click 

input parameters 

, 

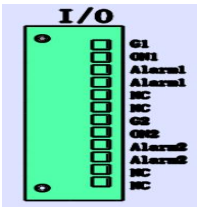
then click "Return"</td></tr>
<tr><td>3. Click

click 

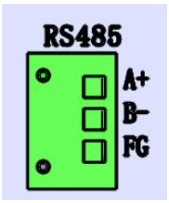
to start irradiating</td></tr>
<tr><td>The UV LED lights up and starts counting, click 

to turn it off manually</td></tr>
</table>

4. The connection of the peripheral device



I/O signal port



RS485 communication

IO signal port	Functions
G1, ON1 (channel one)	Connect the foot to switch the UV light
Alarm1, Alarm1	Alarm output signal, switch signal.
RS485	From top to bottom A+ B- FG

4.1 RS485 communication protocol：

The UV LED controller uses a standard RS485 Modbus-RTU interface, with a baud rate of 115200, no parity bit, 8 data bits, and 1 stop bit (115200 N 8 1).

4.2 Description of register：

00	The factory default local adress is '0' (Range: 0-255). Supports reading/ writing
01	Setting address of UVLED output power (Range: 1-100%) Supports reading/ writing
02	Setting address to manual/automatic mode (0: manual 1: automatic) Supports reading/ writing
03	Setting address to Irradiation time (Range: 0-100 seconds) Supports reading/ writing
04	Setting address to Alarm temperature (Setting range: 50℃-65℃) Supports reading/ writing
05	Current temperature address - Only supports reading
06	NC
07	The address of turn on/off UVLED (0: off 1: on) Only supports writing

4.3 The supporting command codes from UV LED controller：

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

4.4 The format of the read and write parameters instructions:

4.4.1. Command format to modify the UV LED controller's address (hexadecimal)
For example: No. 1 address is changed to No. 2 address

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

Device adress	Function code	Register address		Data bit		CRC check	
01	06	00	00	00	02	08	0B

4.4.2. Command format to set the UV LED controller's output power (hexadecimal)

For example: set 50% power output
(Decimal "50" is converted to hexadecimal "32", If the device address is '1':

Device adress	Function code	Register address		Data bit		CRC check	
01	06	00	01	00	32	59	DF

4.4.3.Command format to set the UV LED controller's automatic irradiation time (hexadecimal)

For example: setting irradiation time to 100 seconds,
That is 100 (decimal "100" is converted to hexadecimal to "64"), If the device address is '1':

Device adress	Function code	Register address		Data bit		CRC check	
01	06	00	03	00	64	78	21

4.4.4.Command format for reading the UV LED lamp's real-time temperature (hexadecimal)

If the device address is '1':

Device adress	Function code	Register address		Data bit		CRC check	
01	03	00	05	00	01	94	0B

Return value: (01 03 00 05 22 9A CD)
'22' is the hexadecimal real-time temperature value for decimal 34℃

4.5 Calculation method of CRC16:

4.5.1.Preset a 16-bit register as hexadecimal FFFF (that is, all 1), and call this register a CRC register.

4.5.2 Exclusive-OR gated the first 8-bit binary data (the first byte of the communication information frame) with the lower 8 bits of the 16-bit CRC register, and put the result in the CRC register.

4.5.3 Shift the contents of the CRC register one bit to the right (toward the low bit) and fill the most significant bit with 0, and check the shifted out bit after the right shift.

4.5.4 If the shifted bit is 0, repeat step 3 (shift one bit to the right again); if the shifted bit is 1, the CRC register is Exclusive-OR gated with the polynomial A001 (1010 0000 0000 0001).

4.5.5 Repeat steps 3 and steps 4 until the right shift is 8 times, so that the entire 8-bit data has been processed.

4.5.6 Repeat steps 2 to steps 5 to process the next byte of the communication information frame.

4.5.7 After all the bytes of the communication information frame are calculated according to the above steps, the high and low bytes of the obtained 16-bit CRC register are exchanged.

4.5.8The final content of the CRC register is the CRC code.

The example of CRC verification program:

```
void crc16(unsigned char *ptr,unsigned int len){

  unsigned long wcrc=0XFFFF;//Preset 16-bit crc register, the initial value is all 1
  unsigned char temp;//Define intermediate variables
  int i=0,j=0;//Define count
  for(i=0;i<len;i++)//Calculate each data in a loop
  {
      temp=*ptr&0X00FF;//Exclusive-OR gated the eight-bit data with the crc register
      ptr++;//The pointer address increases to point to the next data
      wcrc^=temp;//Store data in crc register
      for(j=0;j<8;j++)//Calculating data cyclically

       {
          if(wcrc&0X0001)//Determine whether the right shift is 1, if it is 1, then perform Exclusive-OR gated with the polynomial
          {
              wcrc>>=1;//First shift the data to the right
              wcrc^=0XA001;//Exclusive-OR gated with the above polynomial
          }
          else//If it is not 1, move out directly
          {
              wcrc>>=1;//Move out directly
          }
       }
    }
    temp=wcrc;//Value of crc
    M_CRC[0]=wcrc;//Low eight bits of crc
    M_CRC[1]=wcrc>>8;//High eight bits of crc
}
}
```

6 Equipment maintenance

6.1. Clean the surface dust every day, keep the body clean, regularly clean the dust on the cooling channel and fan port (normally cleaned once a month, depending on the environment).

6.2. Turn on the light to check whether the UV lamp is irradiating according to the set power, if it is abnormal, or stops working, contact the staff or contact the manufacturer for inspection.

6.3. The equipment should be controlled for mainteinance every month, and the UV LED glass should be checked to see if it is polluted, whether the UV lamp is aging, etc.

7 Precaution

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

(2) Do not disassemble UV LED irradiation head which may cause UV light leakage.

(3) When installing or removing the UV LED irradiation head, please be sure to cut off the power supply for operation.

(4) When cleaning the irradiation head and controller, please do not use thinner, volatile oil, acetone, kerosene, etc., you can use a soft cotton cloth to spot a small amount of ethanol and wipe carefully.

(5) Please use this machine in a cool, dry, ventilated, non-high magnetic field, and no high electric field environment.

(6) Please use the DC power supply specially equipped by the manufacturer for the power adapter.

(7) Do not open the controller privately to prevent the risk of leakage.