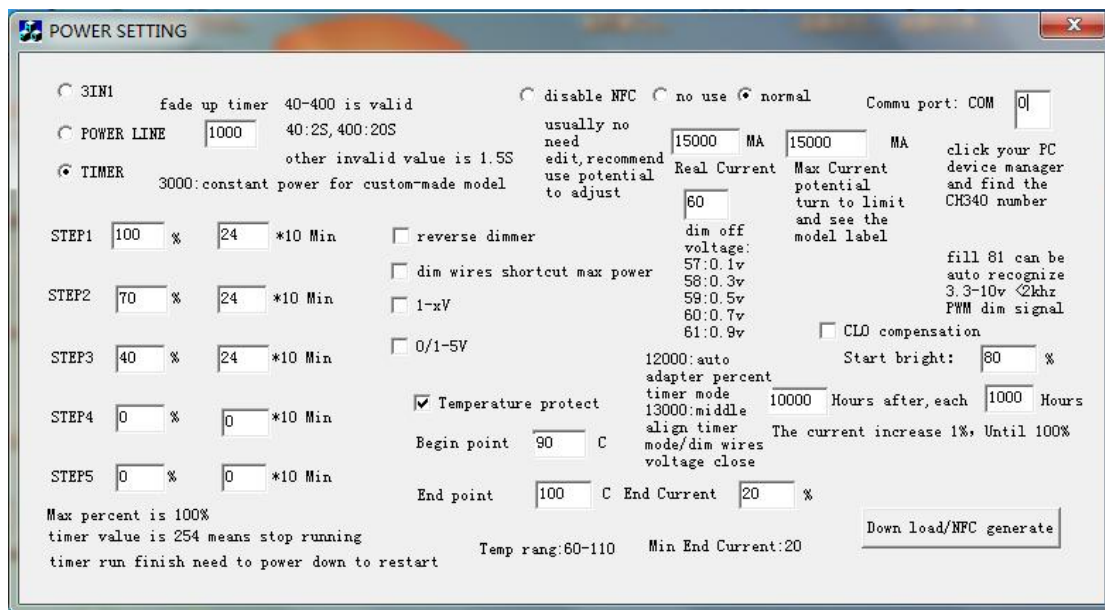


POWER Programming System Manual

I .Unique Features

1. It can automatically identify the PWM voltage and calculate the PWM duty cycle, which can easily connect with intelligent lighting modules with different output voltages such as 3.3V and 5V stably and reliably.and it able to transmit more than 1km.on 10V PWM for WVO
2. The power supply current can be adjusted through the APP interface or production body potentiometer.
3. Light Fade up time can be selected.(1S-20S)
4. It can be programmed offline or online, and supports batch programming after multiple power supplies are connected.
5. Dimming wires are high input impedance. it will not be damaged if it touches AC220V for most part of models

II . Interface description:



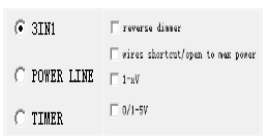
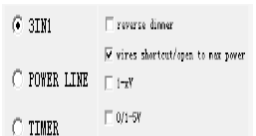
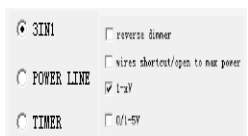
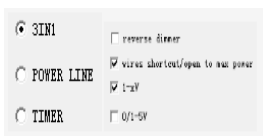
The system consists of three major functional modules (3IN1 , POWER LINE, TIMER)

1, 3 IN 1:

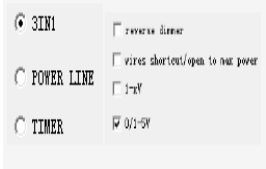
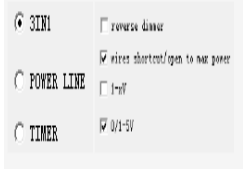
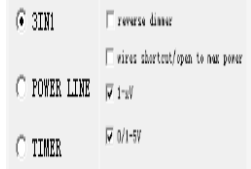
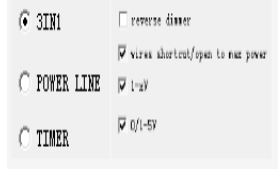
3 in 1 dimming includes 0-10V, 10-0V, 0-5V, 5-0V, 100K RESISTOR, PWM dimming, if fill 81,the power supply can automatically recognize the PWM signal and enter the PWM dimming mode. The recommended PWM frequency is 200-2KHZ. The recognized percentage is 1%-96%. fill 13000 it able to transmit more than 1km.

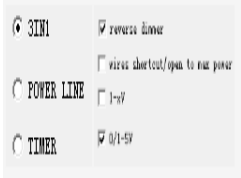
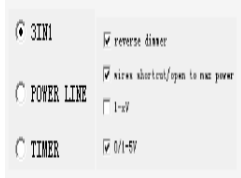
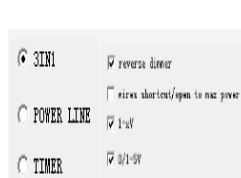
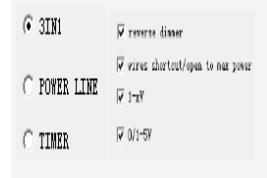
Note: If the PWM voltage amplitude exceeds 10V or more, and long-distance transmission is not required, there is no need to enable the PWM recognition function. In this case, it can match a wide PWM signal range of 200-30KHZ with small dimming ratio deviation.

The following table lists the control parameters in the 3 in 1 dimming mode, and there are 16 combinations (Note: The data in the table may be slightly different for each power supply, but the basic control logic is the same. For example: the data in the table: <0.7V off, >0.9V on, some supplies may be <0.5V off, >0.7V on).

3 in 1 forward(default VO)			
0-10V forward Dim wires shortcut light off Dim wires suspended full light	0-10V forward Dimmer wires shortcut Full light Dim wires suspended full light	0-10V forward no shut off dim wires shortcut hold 7%brightness suspended full light	0-10V forward no shut off Dimmer wires shortcut Full light Dim wires suspended full light
<0.7V off, >0.9V on, >9.9V Full light. PWM: <7% off , >99% Full light. This mode not suit for WVO	<0.3V Full light, <0.7V off, >0.9V on, >9.9V Full light. PWM: <1% full light. <7% off, >99% full light,	<0.7V keep 7% brightness >0.9V on, >9.9V Full light PWM: <0.7V keeps 7% brightness >99% full light	<0.3V Full light, <0.7V keep 7% brightness >0.9V on, >9.9V Full light. PWM: <1% Full light, <7% keep 7% brightness >99% Full light.
			
1	2	3	4

PS:WVO is means the dim wires without voltage output when suspended(0V). and VO is means it has 13V voltage output when suspended. WVO is very suit for multiple power supplies connection no interference, but WVO can not support 100K resistor dimming

3 in 1 forward(default VO)			
0-5V forward Dim wires shortcut light off Dim wires suspended full light	0-5V forward Dimmer wires shortcut Full light Dim wires suspended full light	0-5V forward no shut off dim wires shortcut hold 7%brightness suspended full light	0-5V forward no shut off Dimmer wires shortcut Full light Dim wires suspended full light
<0.5V off, >0.7V on, >4.8V Full light PWM:<7% off, >99% Full light. This mode not suit for WVO	<0.3V Full light, <0.5V off, >0.7V on, >4.8VFull light PWM: <1% Full light,<7% off, >99% Full light.	<0.5V keep 7% brightness >0.7V on, >4.8V Full light. PWM: <7% keep 7% brightness >99%Full light	<0.3V Full light, <0.5V keep 7% brightness >0.7Von, >4.8VFull light. PWM: <1% Full light, <7% keep 7% brightness >99% Full light.
			
5	6	7	8

3 in 1 reverse(default WVO)			
0-5V reverse >5v shut off	0-5V reverse >5v shut off >8v full light	0-5V reverse no shut off >5v keep 7% brightness	0-5V reverse no shut off >5v keep 7% brightness >8v full light
>4.8V off, <4.6V on, <0.1V Full light. PWM: <1% Full light. <7% off, >99% Full light This mode not suit for VO	>8V Full light, >4.8V off, <4.6V on, <0.1V Full light. PWM: <1% Full light. <7% off, >99% Full light	>4.8V keep 7% brightness <4.6V on, <0.1V Full light. PWM: <1% Full light. <7% keep 7% brightness >99% Full light	>8V Full light, >4.8V keep 7% brightness <4.6Von, <0.1V Full light. PWM: <1% Full light. <7% keep 7% brightness >99% Full light
			
9	10	11	12

3 in 1 reverse(default WVO)			
0-10V reverse >9.5v shut off	0-10Vreverse, >9.5v shut off >10.2v full light	0-10V reverse no shut off >9.5v keeps 7% brightness	0-10V reverse no shut off , >9.5v keeps 7% brightness >10.2v full light
>9.5V off, <9.3V on, <0.1V Full light. PWM: <1% Full light. <7% off, >99% Full light This mode is not suit for VO	>10.2V Full light , >9.5V off, <9.3V on, <0.1V Full light. PWM: <1% Full light. <7% off, >99% Full light	>9.5V keep 7% brightness <9.3V on, <0.1V Full light. PWM: <1% Full light. <7% keep 7% brightness >99% Full light	>10.2V Full light, >9.5V keeps 7% brightness unchanged, <9.3V on, <0.1V Full light. PWM: <1% Full light. <7% keep 7% brightness >99% Full light
☒ 3IN1 ☒ reverse dimmer ☐ POWER LINE ☐ wires shorttest/open to max power ☐ TIMER ☐ 0/1-5V	☒ 3IN1 ☒ reverse dimmer ☐ POWER LINE ☐ wires shorttest/open to max power ☐ TIMER ☐ 0/1-5V	☒ 3IN1 ☒ reverse dimmer ☐ POWER LINE ☐ wires shorttest/open to max power ☐ TIMER ☐ 0/1-5V	☒ 3IN1 ☒ reverse dimmer ☐ POWER LINE ☐ wires shorttest/open to max power ☐ TIMER ☐ 0/1-5V
13	14	15	16

2, Power line communication(HVS,LBS,LCS,LDS,SAP,SCP series only):

☐ 3IN1
☒ POWER LINE
☐ TIMER

Conventional products do not have this function, and are only available for customer -specific customization it is need a main controller:



3, Tradition Timer control:

☐ 3IN1
☐ POWER LINE
☒ TIMER

STEP1	100 %	24 *10 Min
STEP2	70 %	24 *10 Min
STEP3	40 %	254 *10 Min
STEP4	0 %	0 *10 Min
STEP5	0 %	0 *10 Min

There are 5 brightness levels and their corresponding time. Every time the power is turned on, it will automatically start running from the first step. The power supply first turns on the brightness of the first step, and then starts timing. When the first step time is over, the second step of brightness will be turned on and the second step of timing will be performed. By analogy, the lights will be turned off after 5 steps of running over. After lights off, you need to turn off the power and wait for more than 5 seconds, then turn on the power again to restart.

If the timer value setting to 0 means currently step is invalid to jump to next step and setting to 254 means the timer be cancel, the brightness stay on currently step always

4, Timer-controlled adaptive percent mode:

☐ 3IN1
☐ POWER LINE
☒ TIMER

```

12000:auto
adapter percent
timer mode
13000:middle
align timer
mode/dim wires
voltage close
        
```

STEP1	100 %	24 *10 Min
STEP2	70 %	24 *10 Min
STEP3	40 %	24 *10 Min
STEP4	0 %	0 *10 Min
STEP5	0 %	0 *10 Min

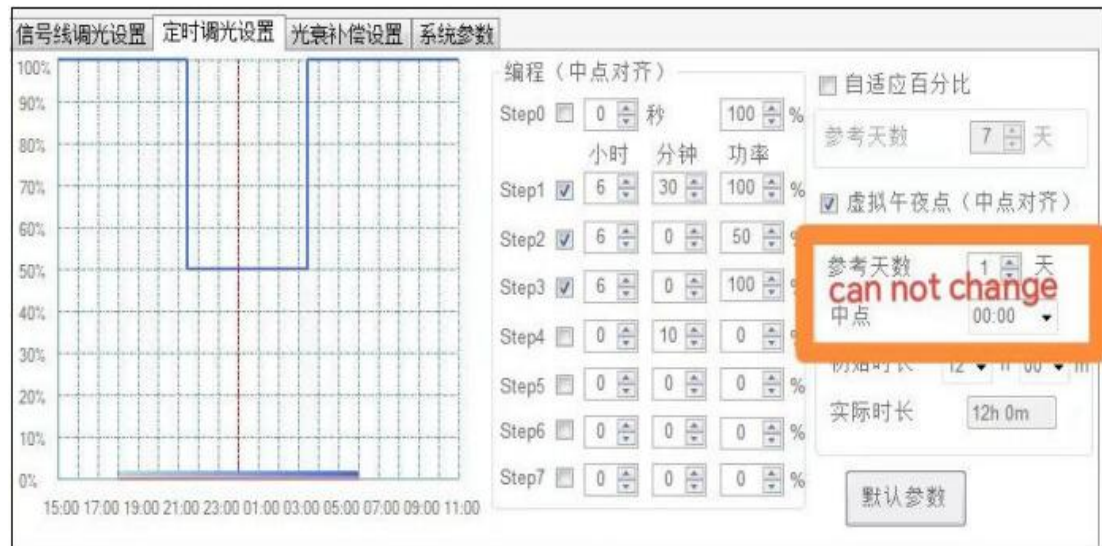
Automatic compensation can be activated in response to the different lengths of the night in the four seasons or different country. The method is: set the value to 12000, the above figure for example: $24 + 24 + 24 + 24 + 0 + 0 = 72$, Since the unit is 10 minutes, namely $72 * 10 \text{ minutes} = 12 \text{ hours}$. If the power grid had only supplied for 10 hours last night. Then, when running tonight, the system will automatically compensate and adjust each period as follows: step 1 $(24) * 10 / 12 = 20$, equal 200 minutes. The calculation method is the same for the other 2 to 5 steps.

Note: If the power grid had supplied < 6 hours or > 24 hours, the system will be considered invalid data, and then use the data of the previous day. If the previous data is invalid, the system default 12 hours will be used.

PS: Some models are fixed to 5% when the brightness is $< 5\%$ (i. e., keep the slightly bright output no shut off)

5, Midpoint alignment Timer mode:

This mode is quite complex and difficult to understand, requiring the use of MOSO's APP for better comprehension. After filling in the parameters and confirming that the graph's curve behavior meets the requirements, you can copy the data to your APP (the bottom red line in the curve below is its operational trajectory)



Copy the above MOSO's APP data to the following figure, and fill in 13000 to enable the midpoint alignment timer mode.

Note: The above parameters in the yellow box area must remain constant.

TIMER

1000: Out

STEP1

100 %

39 *10 Min

STEP2

50 %

36 *10 Min

STEP3

100 %

36 *10 Min

STEP4

0 %

0 *10 Min

STEP5

0 %

0 *10 Min

CLD compensation

Start bright: 80 %

13000 Hours after, total 1000 Hours

Current increase 1%, Until 100%

6, Current adjustment:



usually no need edit, recommend use potential to adjust

15000	MA	15000	MA
Real Current		Max Current	
60		potential turn to limit and see the model label	
dim off voltage:			

PS: if the products body has a resistor to adjust current, recommend no change any parameters above. unless the resistor turn to limit after the current still not to expect value. then you can fill the currently value into the Max Current edit box. and the expect value fill into the Real Current edit box. below is set current to 500MA:



usually no need edit, recommend use potential to adjust

500	MA	800	MA
Real Current		Max Current	
60		potential turn to limit and see the model label	
dim off voltage:			

you still can be set to other current value, but it is not recommend, the below is set to 1200MA:

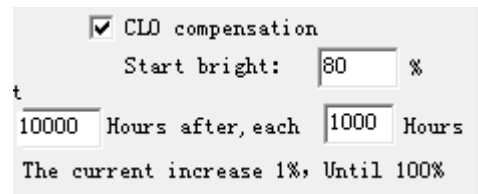


usually no need edit, recommend use potential to adjust

1200	MA	1500	MA
Real Current		Max Current	
60		potential turn to limit and see the model label	
dim off voltage:			

7, Light attenuation compensation(CLO):

The user fills in the percentage of the initial current in the first edit box. After working time exceeds the number of hours in the second edit box. The system will start to ramp up the current automatically. Increase by 1% for each hour worked beyond the third edit box.



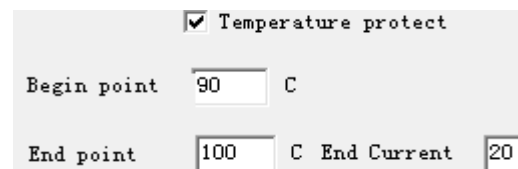
☒ CLO compensation
Start bright: 80 %
10000 Hours after, each 1000 Hours
The current increase 1%, Until 100%

8, Temperature control function (works after over-temperature protection is enabled):

Begin point protection temperature: When the temperature reaches the temperature value filled in the box, it starts to enter the current reduction mode.

End point protection temperature: When the temperature reaches the temperature value filled in the box, the output current value is fixed at the number in the "End Current" box value, the current no longer drops.

For example: The Begin point temperature is 70, the End point protection temperature is 80, and the End Current is 20. When the temperature exceeds 70 C, the current reduction process is as follows: $(100-20)/(80-70)=8$. That is, after exceeding 70 C, the current will decrease by 8% of the total current for every 1 C increase. But if temperature < 60 C, the current will start to slowly increase.



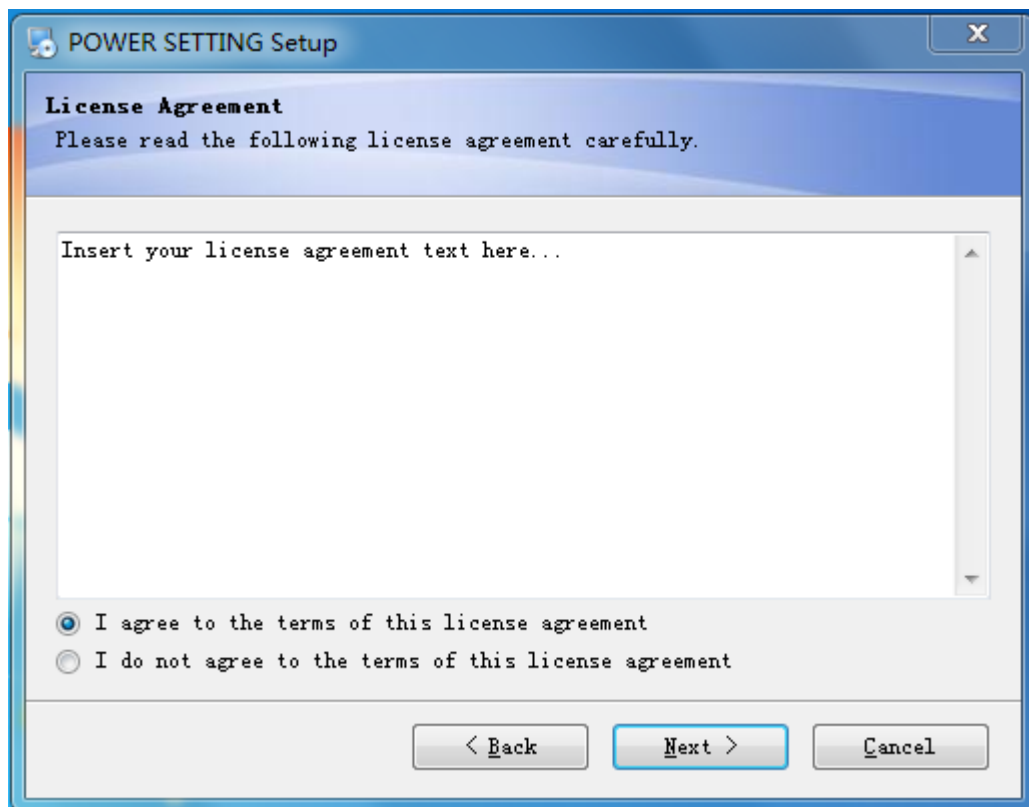
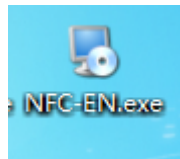
☒ Temperature protect
Begin point 90 C
End point 100 C End Current 20

III. Communication download line and software installation:

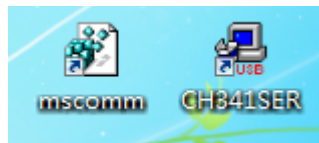


The programming system software comes with a USB driver software with a download line. Please install programming system first (support all systems of WINXP-WIN11). The installation method is as follows:

It is recommended to quit anti-virus software such as 360 Security Guard first. Double-click "NFC-EN.EXE" and click "NEXT"-choose "I AGREE TO THE..."-then keep clicking "NEXT" until the installation is complete.



After the installation is complete, the below two USB driver files will be on your table, click them both to install.



Click "mscomm" like below, click "YES"



Click "CH341SER" and click the install button



So far the software installation has been completed. There will be an icon of the application software on the desktop of the computer, first insert the USB download cable into the USB port of the computer. Double-click to start the programming software.



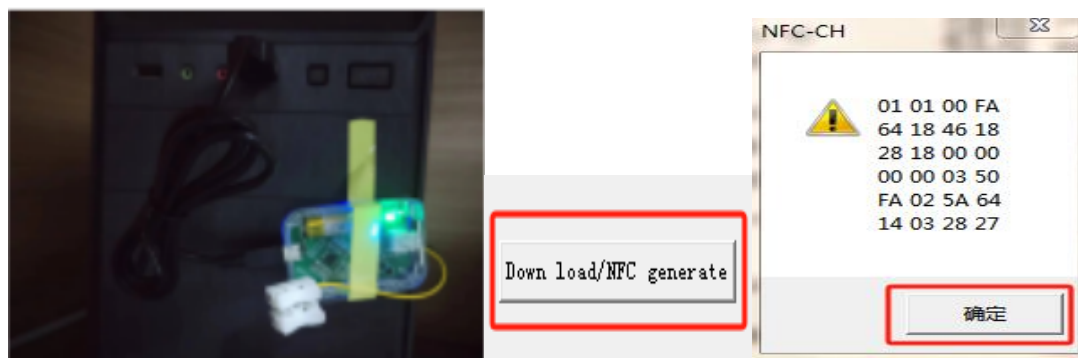
At this time, the "communication port" port number in the programming software interface needs to be filled in manually, and the method is as follows:

Right-click "My Computer" or open "Device Manager" from the control panel, click "Ports (COM and LPT)" to display the following figure, and fill in the "Communication Port" box of the programming software with the number after "USB-SERIAL CH340 (COM12)". At this point, the computer can communicate with the download cable for use.



IV, The offline programmer communicates with the computer:

Insert the USB cable to the USB port. at this time the indicator LED is light on. After filling in all the parameters on the programming software interface, click "Download". after success. The indicator LED will flash three times (on for 1 second - off for 1 second, a total of three cycles), so far. The parameters on the computer have been downloaded to the offline programmer.

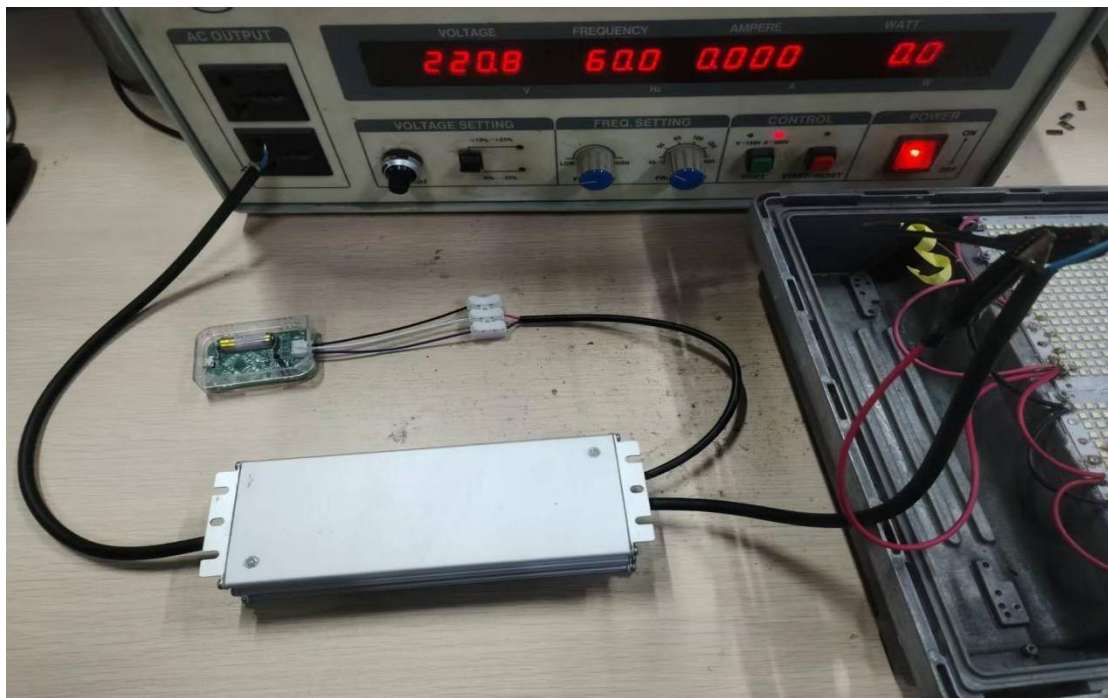


V, Online to program the LED power supply :

Connect the two wires (violet-violet, pink-white) and connect to AC220V, now you need to power on the AC220V on same time press the "Programming" button and keeping 2seconds, and it will flash three times after success (on for 0.5 seconds - off for 0.5 seconds, total of three cycles).

Ps: when AC220V power up, need to quickly press the key within 1 second, if no flash three times within 2seconds, that means failure, must be power down waiting for 3-5 seconds and redo

Two wires operation:



VI, Offline to program the LED power supply(violet-violet, pink-white,black-black):
Three wires operation(no need connect to AC220V,just press the key and waiting
for the indicator LED flash three times)



PS:when program operating, the programmer do not connect to USB cable

