# 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

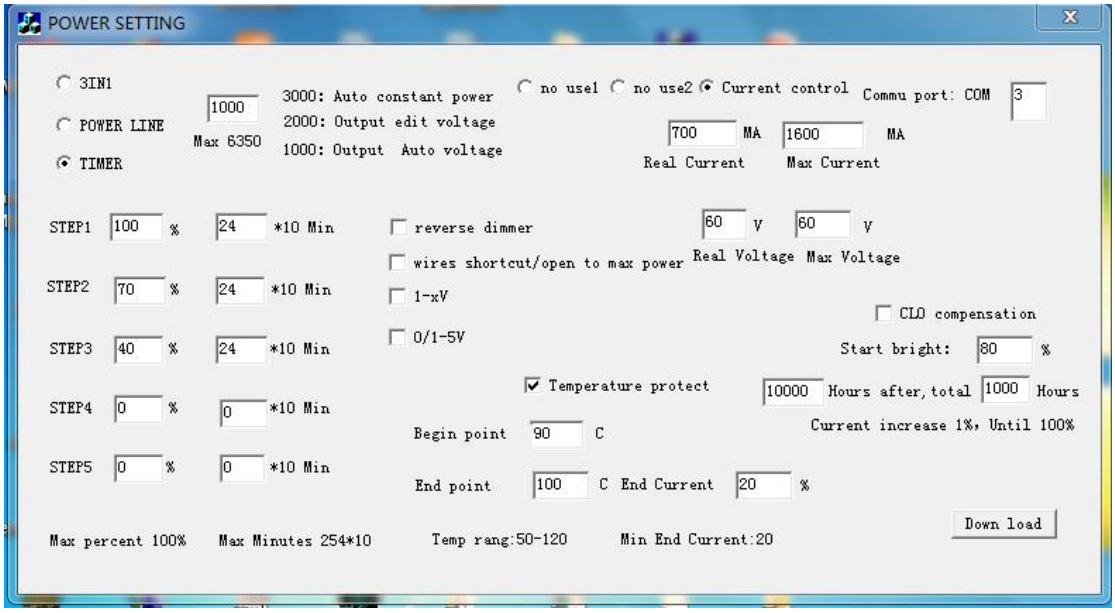
2. The power supply current can be adjusted through the software interface or an external 50K potentiometer. System will be take the smaller one

3. Constant power, manually edited power, and automatic power limit can be selected.

4. It can be programmed offline or online, and supports batch programming after multiple power supplies are connected, which greatly simplifies the programming work.

5. Dimming wires are high input impedance. it will not be damaged if it touches AC220V for most part of models

Ⅱ. Interface description：

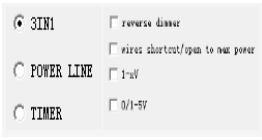
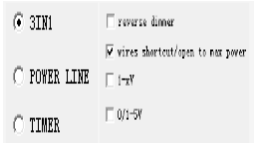
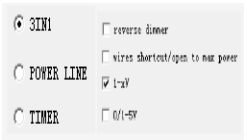
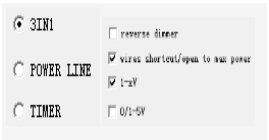



1.The system consists of three major functional modules (3IN1 , POWER LINE, TIMER)

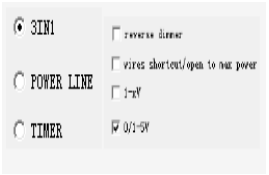
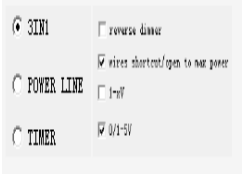
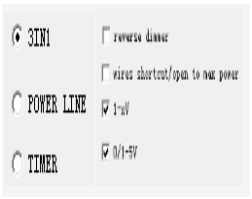
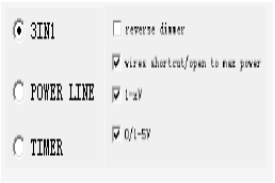
3 IN 1:

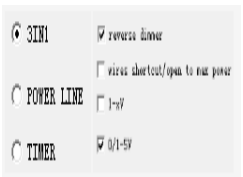
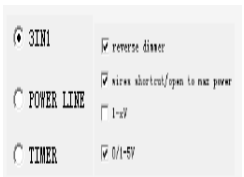
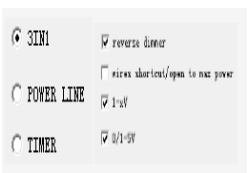
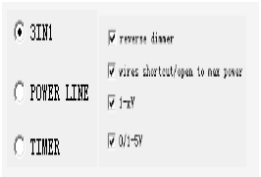
1.1 3 in 1 dimming includes 0-10V, 10-0V, 0-5V, 5-0V, 100K RESISTOR, PWM dimming, the power supply can automatically recognize the PWM signal and enter the PWM dimming mode. The recommended PWM frequency is 200-2KHZ. The recognized percentage is 1%-96%.

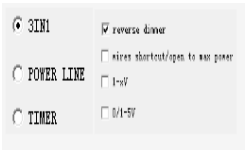
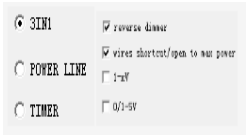
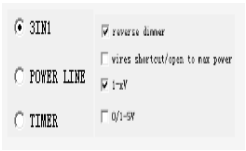
1.2 The following table lists the control parameters in the 3 in 1 dimming mode, and there are 16 combinations (Note: The data in the table may be slightly different for each power supply, but the basic control logic is the same. For example: the data in the table: <0.7V off, >0.9V on, some supplies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

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

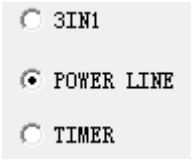
PS:WVO is means the dim wires without voltage output when suspended(0V). and VO is meanS it has 13V voltage output when suspended. WVO is very suit for multiple power supplies connection no interference,but WVO can not support 100K resistor dimming

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

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

| 3 in 1 reverse(default WVO) | | | |
|---|---|---|---|
| 0-10V reverse<br>>9.5v shut off | 0-10Vreverse,<br>>9.5v shut off<br>>10.2v full light | 0-10V reverse no shut off<br>>9.5v keeps 7% brightness | 0-10V reverse no shut off ,<br>>9.5v keeps 7% brightness<br>>10.2v full light |
| >9.5V off, <9.3V on, <0.1V Full light.<br>PWM: <1% Full light.<br><7% off, >99% Full light<br><br>This mode is not suit for VO<br>  <br> | >10.2V Full light , >9.5V off, <9.3V on, <0.1V Full light.<br>PWM: <1% Full light.<br><7% off, >99% Full light<br>  <br> | >9.5V keep 7% brightness<br><9.3V on, <0.1V Full light.<br>PWM: <1% Full light. <7% keep 7% brightness<br>>99% Full light<br>  <br> | >10.2V Full light, >9.5V keeps 7% brightness unchanged,<br><9.3V on, <0.1V Full light.<br>PWM: <1% Full light. <7% keep 7% brightness<br>>99% Full light<br>  <br> |
| 13 | 14 | 15 | 16 |

Power line communication(HVS,LVS,LBS,GEW series only):



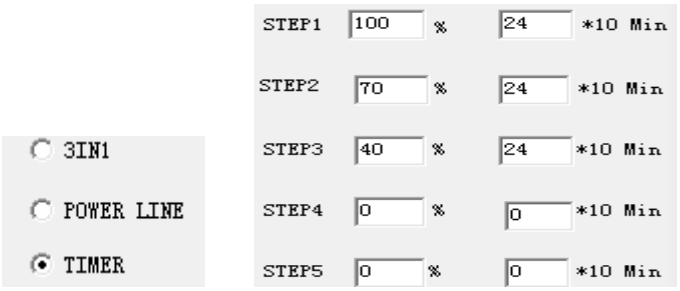

Conventional products do not have this function, and are only available for customer -specific customization it is need a main controller:

Tradition Timer control(the 5 steps timer value to add the result >144):


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(but the 5th step timer value is 0 will not turned off). 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 all the time

Time-controlled adaptive mode(the 5 steps timer value to add the result <144):




Automatic compensation can be activated in response to the different lengths of the night in the four seasons or different countrys. The method is: set the time of 5 steps to add the result less than 144 (i. e., less than 24 hours), the above figure for example: 24 + 24 + 24 + 24 + 0 + 0=72, the result less than 144 will automatically enter the compensation mode. Since the unit is 10 minutes, namely 72 * 10 minutes =12 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.

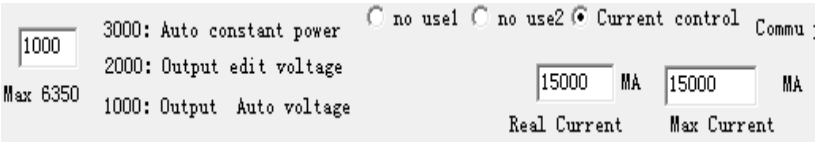
Note: If the power grid had supplied <6 hours or >24 hours, the system will be considered invalid data, and then use the data of the previous day. If the previous data is invalid, the system default 12 hours will be used.

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

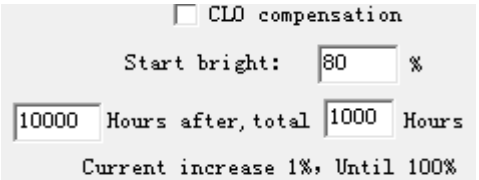
2，The system has three power control methods (constant power, manual edit output voltage, automatic limit output voltage(common products has this select))
2.1：Constant power (constant power models do not support manual editing of voltage and power limit):
First fill in the value in the edit box to 3000, then fill in the maximum current according to the label on the power supply, and finally fill in the required set current (the set current value multiplied by the minimum voltage value on the label is the constant power value), at this time Regardless of how the LED load voltage changes. The power supply will automatically adjust to keep the total power value constant.

2.2：Manually edit the output voltage, this mode can be used as a constant voltage power supply (this model does not support constant power)：
First fill in the value of the edit box to 2000, and then fill in the maximum current on the power label into the maximum current box. Then fill in the required current into the set current box, and finally fill in the maximum voltage on the power label in the maximum voltage box, and fill in the desired actual voltage in the set voltage box. At this time, the set voltage multiplied by the set current is the power edited by the user. It should be noted that the edited power cannot exceed the maximum power allowed by this power supply.

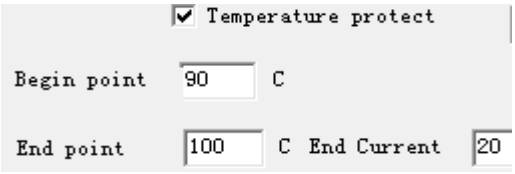
2.3: Automatically limit the output voltage (the automatic voltage limiting model does not support constant power),common products has this select,usually no need change:
First fill in the value of the edit box to 1000, and then fill in the maximum current on the power label into the maximum current box. Finally, fill in the required current into the set current box. It will automatically calculate and output the matching output voltage value in combination with the size of the potentiometer for adjusting the current. Automatically limit the total power not to exceed the standard.




Ps: if the products body has a resistor to adjust current,do not 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 Currrent edit box.and the expect value fill into the Real Current edit box
3. 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.

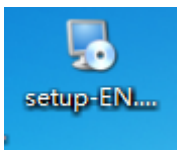


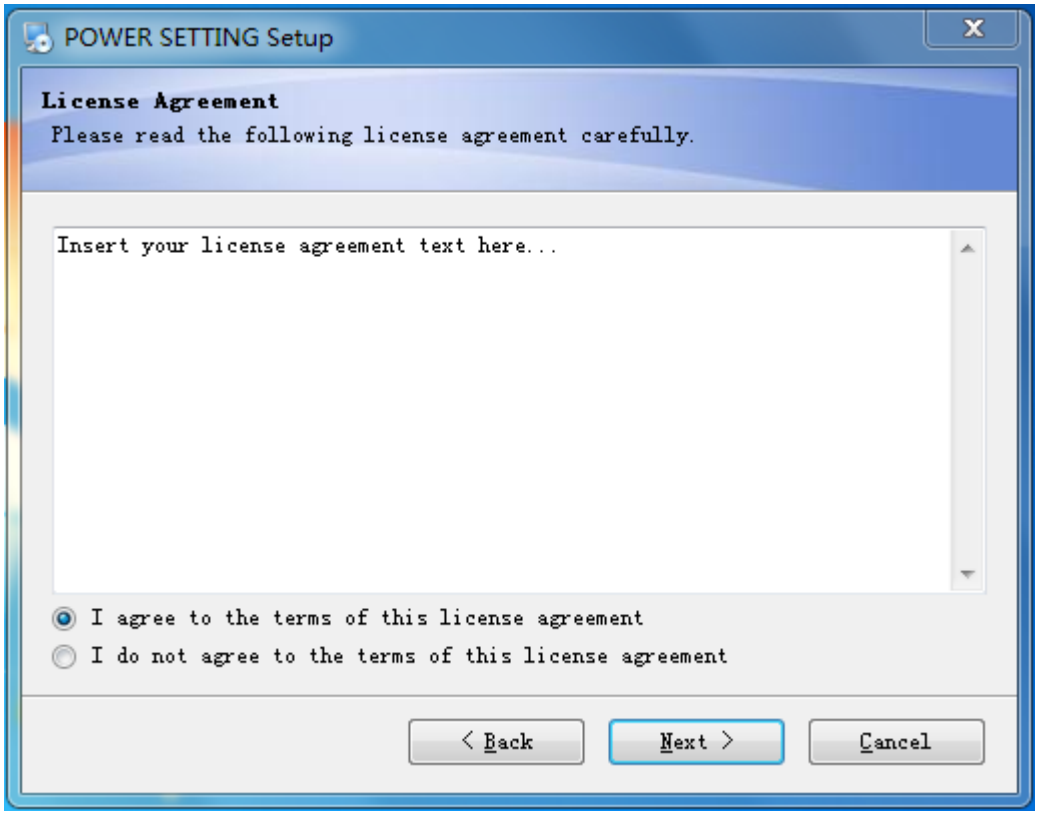
4. Temperature control function (works after over-temperature protection is enabled):
Begin point protection temperature: When the temperature reaches the temperature value filled in the box, it starts to enter the current reduction mode.
End point protection temperature: When the temperature reaches 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.



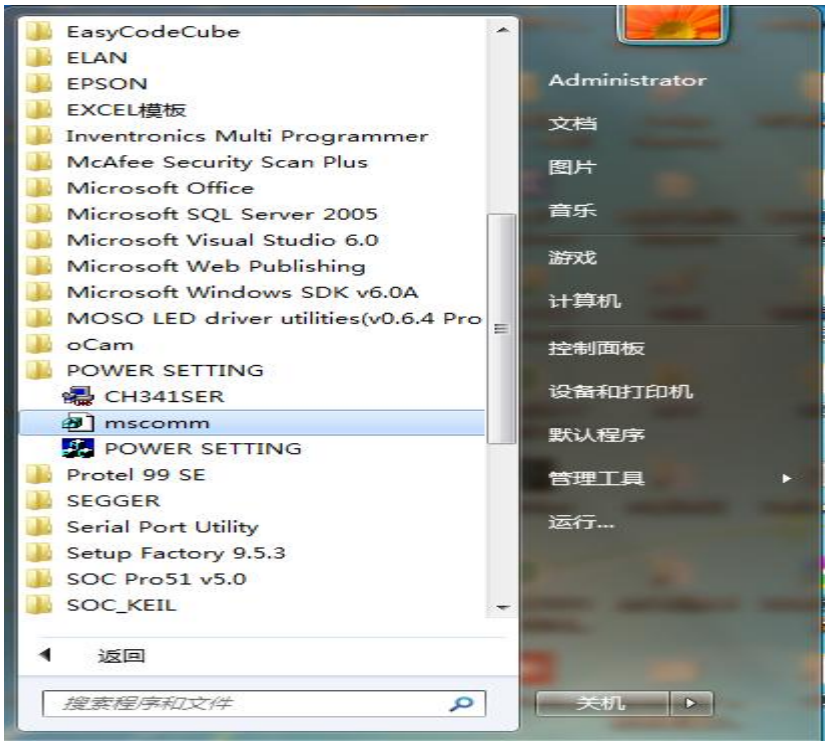

III. Communication download line and software installation:


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 "setup-EN.EXE" and click "NEXT"-choose "I AGREE TO THE..."-then keep clicking "NEXT" until the installation is complete.

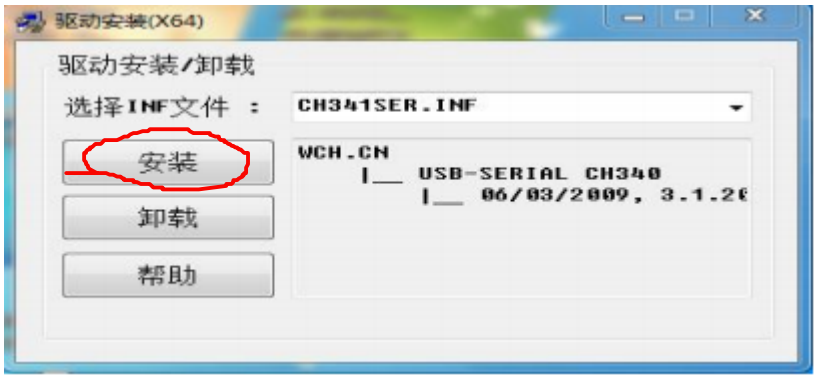



After the installation is complete, click "Start"-"All Programs"-"POWER SETTTING System" on the computer, and the following figure will appear:




Click "CH341SER" to pop up the following picture, click the install button, and the USB driver of the download line will be installed.



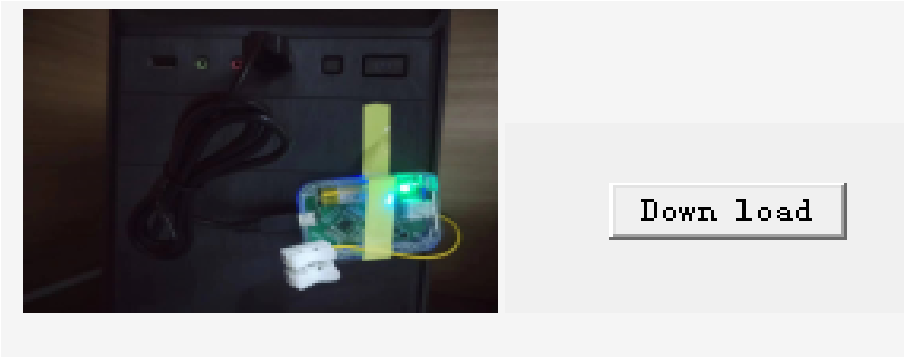

For the first installation, you need to click "MSCOMM" in the above picture to pop up the following dialog box, click "Y"


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.

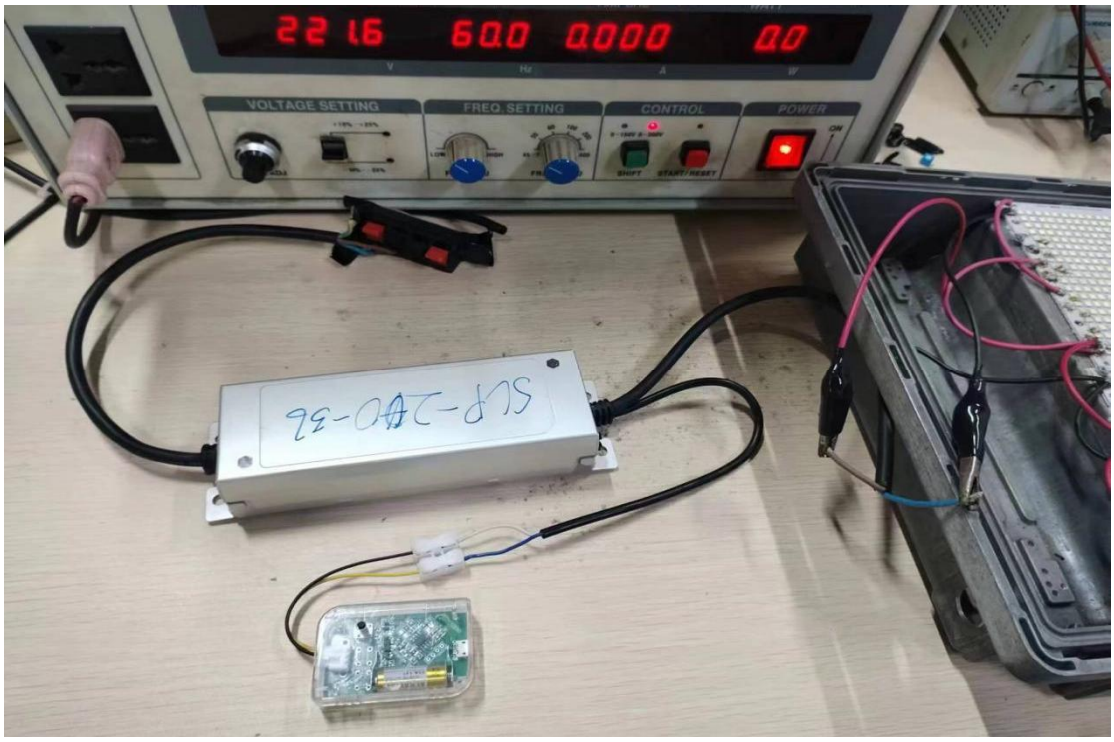

At this time, the "communication port" port number in the programming software interface needs to be filled in manually, and the method is as follows:
Right-click "My Computer" or open "Device Manager" from the control panel, click "Ports (COM and LPT)" to display the following figure, and fill in the "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.
PS:Once download succeeded,it can not be redo download until remove the power and power on again



Ⅴ.Use the offline programmer machine to program the LED power supply :

Connect the two wires (black-white, yellow-blue) 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:if no flash three times within 2seconds, that is mean failure,must be power down waiting for 3-5 seconds and redo




PS: The color of the wires in different products may be different, please see the products label. But there is one thing in common:The black wire connect to DIM-. and The Yellow / blue wire connect to DIM + . The most of the products is DIM- is color pink, and the DIM + is color purple