

# LED Wide-Field Excitation Illuminator for Fluorescence Microscope

## HYPER E301 User Manual



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## 1. Introduction :

YODN's Hyper E301 illuminator is the life science instrument designed for use in laboratory by bio-analytical researchers or developers.

The Hyper E301 illuminator exhibits a broad range spectral light output through a multi-wavelength band combined light source. The on/off lamp of the light source output and the intensity of the light source are controlled by the light source switch and adjusted through the dimming knob, both located on front panel of the illuminator. On the rear panel, connect the 3.0 mm diameter liquid light guide pipe and the output collimator to the microscope or other instruments for biological analytic use.

## 2. Notes and Warnings :

Operation with a simple method to ensure the normal operation of the illuminator.

### **Safety instructions:**

Read and follow all provided safety instructions **before operating the Hyper E301 illuminator**.

Failure to follow safety instructions may result in fire, electric shock, or personal injury, and may result in equipment damage or failure. Please keep all safety instructions.

### **Safety definition:**

**DANGER:** Statements identifying possible conditions or practices that may result in death, serious injury, or equipment damage.

**Warning:** Statements identifying conditions or practices that could result in personal injury.

**Note:** Statements identifying conditions or practices that could result in equipment damage.

### **Safety articles:**

**Warning: Do not use an unapproved power supply.** Please use YODN dedicated power supply for the Hyper E301 illuminator. The external input voltage range is 100 ~ 240 VAC, voltage output 12 VDC, maximum output current is 15.0 A.



**Danger: Do not look directly at the UV light.** The output light source of the illuminator containing UV light may cause damage to the eyes. Do not look directly at the output light source.

The illuminator is brighter than most commercial lighting fixtures and is primarily used to connect the couplers to microscopes or other bio-analytical instruments.

**Note:** Do not open the illuminator housing or change the external device in any way. Opening the illuminator housing will invalidate the product warranty, as there is no need to repair or replace parts outside the illuminator.

**Note:** Do not place any liquid filled container on the illuminator. Spilled liquid can damage the illuminator.

**Note:** Do not drop the illuminator or suddenly apply an external force. The vibration caused by falling onto a hard surface, impacting or colliding with an external force may cause damage or misalignment of components in the illuminator, resulting in malfunction.

**Note: The liquid light guide pipe should not be bumped or knocked. The minimum bending radius should be larger than the specification (80mm or 3.2 inches). Before the light output or before installation, make sure that the protective sleeves on both sides of the light guide pipe are removed.** Failure to comply with the above precautions will result in damage to the light guide pipe, resulting in attenuation or failure of the light output. **The liquid light guide pipe is not included in the warranty.**

**Disclaimer: YODN is not responsible for any user injury or product damage caused by unintentional and complete neglect of all safety precautions and warnings for the use and operation of the illuminator.**

### 3. Installation and operating instructions:

#### 3-1. Content:

Hyper E301 illuminator standard components:

1. Hyper E301 illuminator
2. Diameter (effective inner diameter) 3 mm liquid light guide pipe (optional) :

Product name	Item Number
Φ3mm*1500mm LLG, Series380,STD	H600-0009311
Φ3mm*1800mm LLG, Series380,STD	H600-0010311
Φ3mm*3000mm LLG, Series380,STD	H600-0011311

3. Collimating mirror (optional according to the instrument) :

Product name	Item Number
Collimator for Olympus(Φ3LLG)	H600-0015311
Collimator for Leica(Φ3LLG)	H600-0016311
Collimator for Zeiss(Φ3LLG)	H600-0017311
Collimator for Nikon(Φ3LLG)	H600-0018311
Collimator for Motic (Φ3LLG)	H600-0020310

4. 12 VDC / 15.0 A DC power supply (YODN item number: H006-0034311) :

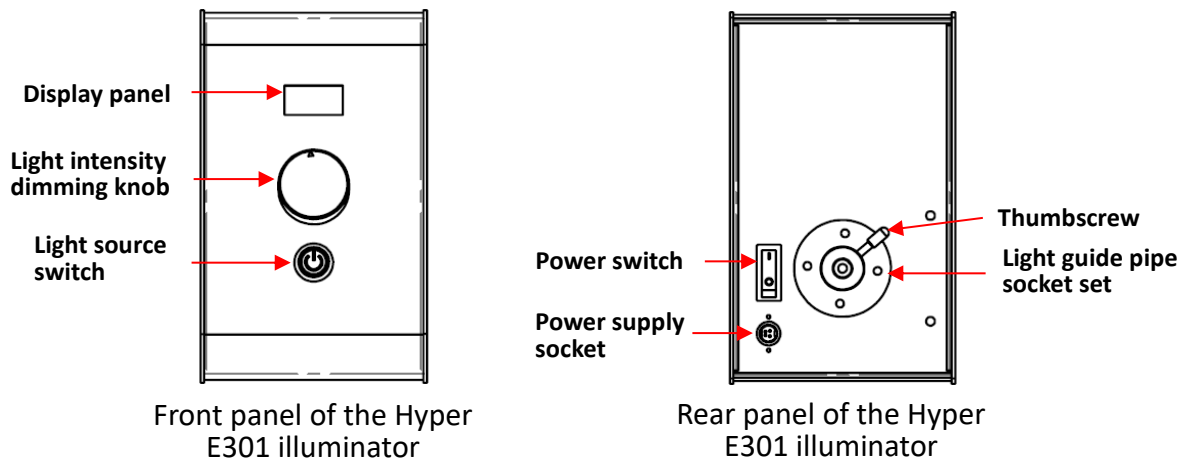
5. AC power cord (optional according to region) :

Area	Item Number
North America	H006-0067311
Europe	H006-0068311
United Kingdom	H006-0069311
Korea	H006-0070311
China	H006-0071311
Taiwan	H006-0072311

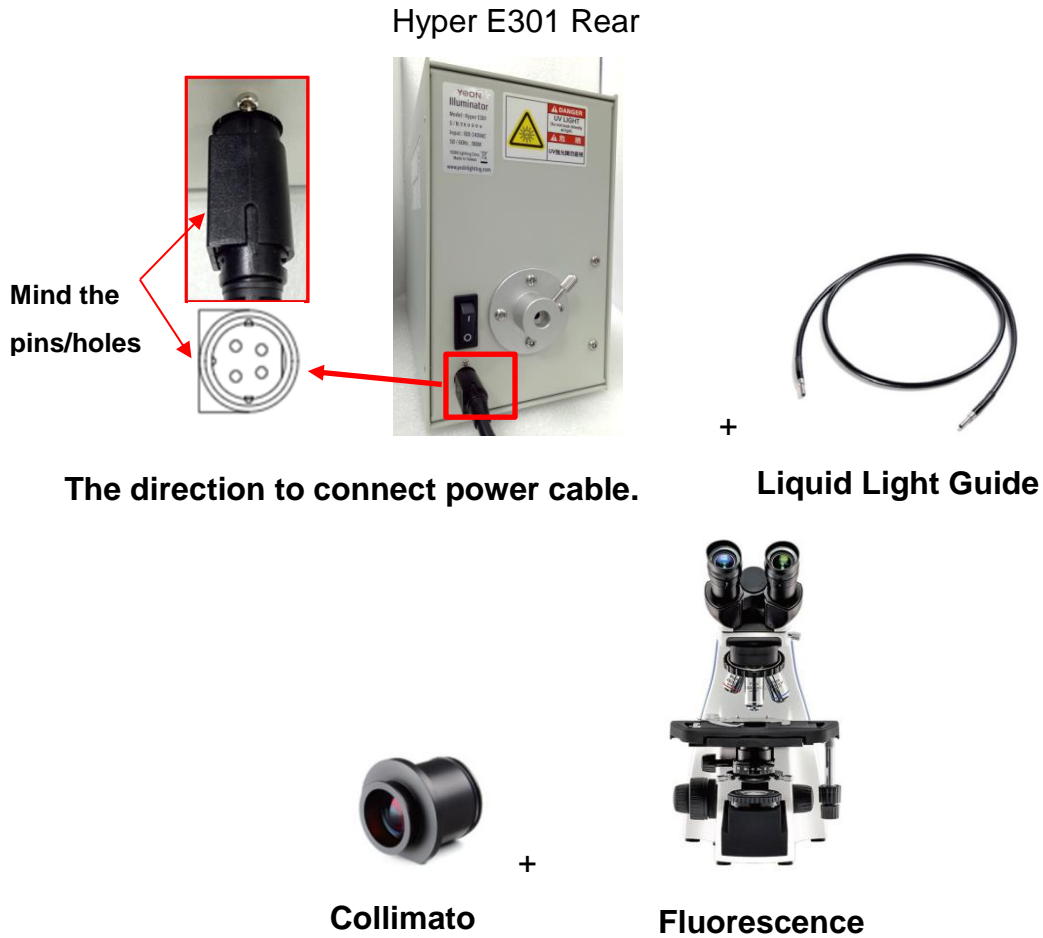
#### 3-2. Installation:

The Hyper E301 illuminator utilizes a forced air cooling system. When placing the illuminator, it is required to place it on a stable horizontal plane. The spare space for placing the illuminator should be confirmed with more than 10cm space on both sides of the air inlet and the air exhaust port of the casing to avoid be blocked or obstructed, which affect the normal operation of the illuminator cooling system. When the cooling system is blocked or obstructed, the equipment will operate at a high temperature, resulting in shortened or premature failure of the illuminator.

The function description of the illuminator (Figure 1), the DC power supply connector has a directional limit. When connecting the DC power supply, please insert it according to the direction of the socket on the back of the illuminator (Figure 2). In case of an emergency, when the power needs to be quickly turned off to the unit, turn off the power by pressing the power switch on the rear panel of the illuminator. The location of the DC power supply socket and power switch is located on the rear panel of the illuminator (Figure 2). Before starting the power supply operation, remove the protective sleeves on both sides of the light guide pipe, and the light guide pipe output is placed in a safe and closed optical path (for example, connect the light guide pipe to the input of collimator to the microscope).



**Figure 1: Function description of the illuminator**



**Figure2: Accessories & Setup Illustration**

Before operating the unit, be sure to install the light guide pipe correctly to the guide pipe socket. Installation method: Remove the protective sleeves on both sides of the light guide pipe, loosen the thumbscrew, and slide the light guide pipe completely into the light guide pipe socket without interference. After the light guide pipe is inserted into the bottom position, manually tighten the thumbscrew to fix the light guide pipe gently, so as to avoid damage to the light guide pipe caused by over tightening.

The light guide pipe bend should not exceed the minimum bend radius (80mm or 3.2 inches). Excessive bending of the light guide pipe may cause permanent deformation of the light guide pipe, resulting in a decrease in light output.

**Note: Before turning on the light, please make sure that the protective sleeves on both sides of the liquid light guide have been removed, the light guide pipe output is placed in a safe position, away from the articles without fireproof. The human eye should not directly look at the light output of the light guide pipe (including UV light output), to protect operators and others from high-intensity light and UV light.**

### 3-3. Operation:

After turning on the power switch on the back of the Hyper E301 illuminator, the illuminator enters standby status, the light source switch display “red”. Before starting the light source, make sure the display panel display intensity by 000%, then manually press the light source switch to switch on or turn off the light source. Press the light source switch to turn on the light source. When the light source illuminates, the light source switch displays “blue”, the output intensity is set to the minimum intensity of 000%, turn the intensity dimming knob on the front panel to adjust the intensity (example 000%→010%→...→100%) or press the intensity dimming knob, then turn the intensity dimming knob to adjust the intensity in fine-tuning mode (example: 010%→011%→...→100%), the light source intensity is displayed on the panel (Figure 3).



**Figure 3: Illustrate lighting of the light**

**Note: When the light source illuminates, take the necessary protective measures to protect yourself and others from high intensity light (including UV light).**

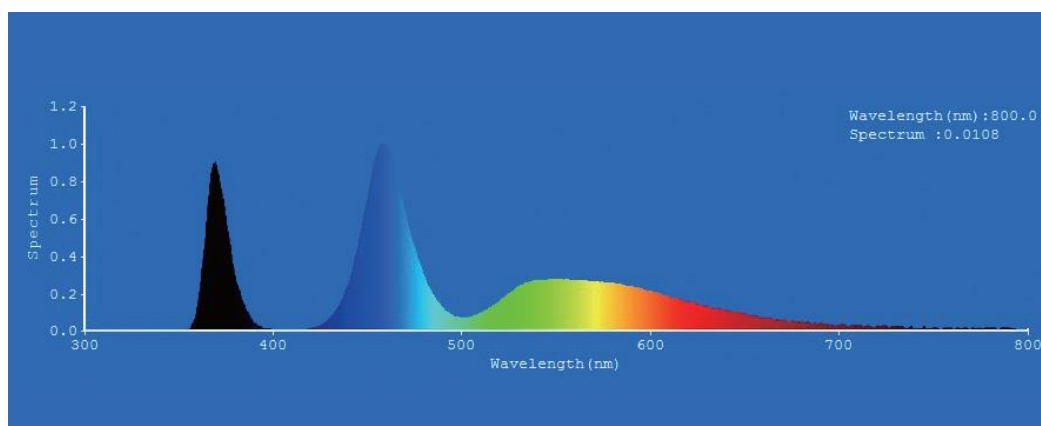
The illuminator has no safety interlock. When the light guide pipe is disconnected from the illuminator during operation, the illuminator continuously outputs the light. Take necessary protective measures to protect people and objects from high intensity light (UV light).

Before the illuminator is turned off, please confirm whether the light source is turned off. When the light source is off, the light source switch will display “red,” the cooling fan will run for more than 3 minutes, then turn off the power of the illuminator.



#### 4. Spectrum:

Hyper E301 illuminator spectrum is shown as follows



#### 5. Product specification:

Hyper E301 illuminator related operating, storage environmental conditions and detailed specifications:

Specification	Detailed specifications
Operating conditions	32 to 95° F (0 to 35° C) Relative humidity 0 to 80% (non-condensable)
Storage conditions	-4 to 158° F (-20 to 70° C) Relative humidity 0 to 80% (non-condensable)
Wavelength range	350 ~ 700 nm
LED peak/ FWHM	365/20 nm, 460/40 nm, 560/80 nm
External power	Universal input power 100-240 VAC, 50/60 Hz
Power consumption	180W
LED on/off response time	1 ms
Panel control	On/off, 1% increment or decrement
Dimension (WxDxH) mm	128 x 338 x 210 (Does not include foot pads, accessories, etc.)
Weight	About 5kg (11 pounds)
Warranty(LEDs)	LEDs : 25,000 hrs (or 3 year) Illuminator : 2 years (parts & labor)

## 6. Routine maintenance and troubleshooting

### 6-1. Routine maintenance

Use a suction device to remove dust or cotton flock from the air inlet and air exhaust ports to ensure stable supply of air for cooling. In a dusty or smoky environment, it is recommended to clean the inlet and outlet with a suction device at least every 6 months.

There are no parts or components in the Hyper E301 illuminator that need to be replaced by the customer. Opening the illuminator housing invalidate the warranty.

### 6-2. Troubleshooting:

According to the condition of the Hyper E301 illuminator, only basic troubleshooting information is provided. The maintenance of the Hyper E301 illuminator can only be implemented by an authorized technician.

#### 1. Unable to start:

- a The power cord is indeed connected to an electrical outlet.
- b The power cord is indeed connected to the power supply socket.
- c The power supply connector is indeed connected to the Hyper E301 illuminator (Figure 2).
- d Hyper E301 illuminator main power switch is indeed turned on, the power supply blue light is on (Figure 4), the display panel on the front panel of the illuminator shows the light intensity "000%", the light source switch shows "red" (Figure 3), please operate the illuminator according to section 3.3.

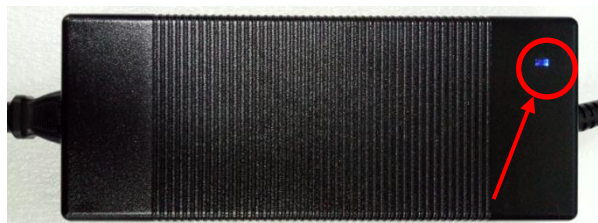


Figure 4: Power supply is connected to AC power source.

2. Panel displays "OVER TEMP":
  - a The illuminator panel displays "OVER TEMP", the illuminator starts over-temperature protection, the light source is automatically turned off, and the light source switch displays "red".
  - b Check that there is more than 10cm space for cooling on both sides of the air inlet and air exhaust ports of the light source housing.
  - c Check if there is accumulated dust or cotton flock in the air inlet and exhaust ports of the illuminator, remove it with a suction device.
  - d Make sure the panel display temperature is below 45 °C before the light source can be re-started. Please operate the illuminator according to Section 3.3.

3. Light intensity is too low:
  - a Remove the thumbscrew on the rear panel of the illuminator, insert the light guide pipe into the light guide pipe socket completely, then manually tighten the thumbscrew to fix the light guide pipe.
  - b Remove the thumbscrew on the collimator, insert the light guide pipe into the collimator, then hand tighten the thumbscrew to fix the light guide pipe.
  - c The collimator and microscope type are determined to match. If it is not matched, please replace the appropriate collimating mirror. If it is a matching product, please connect and fasten the collimating mirror to the microscope.

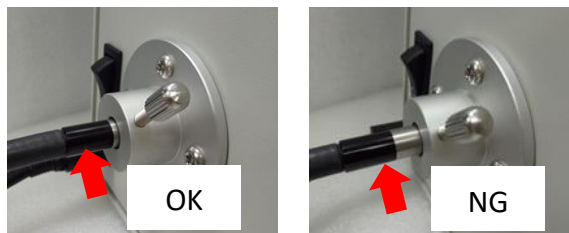


Figure 5: connect the light guide pipe to the light guide pipe socket



Figure 6: Connect the light guide pipe to the collimating mirror

## 7. Customer Service:

For technical support services related to the Hyper E301 illuminator, please call +886-3-5637218, or email Sales@yodnlighting.com, or contact at [http://www.yodnlighting.com/contact\\_info](http://www.yodnlighting.com/contact_info). Related information can be found on the YODN website at <http://www.yodnlighting.com>.

## 8. Declaration of conformity

Manufacturer: YODN Lighting Corp

Address: 6F, No. 1, Creation Rd. II, Science-Based Industrial Park, Hsin-chu City, 30077 Taiwan

We declare that the Hyper E301 illuminator complies with the following regulations and specifications:

RoHS

## 9. Warranty:

The Hyper E301 illuminator provides end users with a 2-year warranty, starting from the date of shipment from YODN.

The warranty range for illuminator accessories does not include liquid light guide pipes.

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