LASER TREE


# K60
# USER MANUAL

OPTICAL POWER

60W+

LASER MODULE

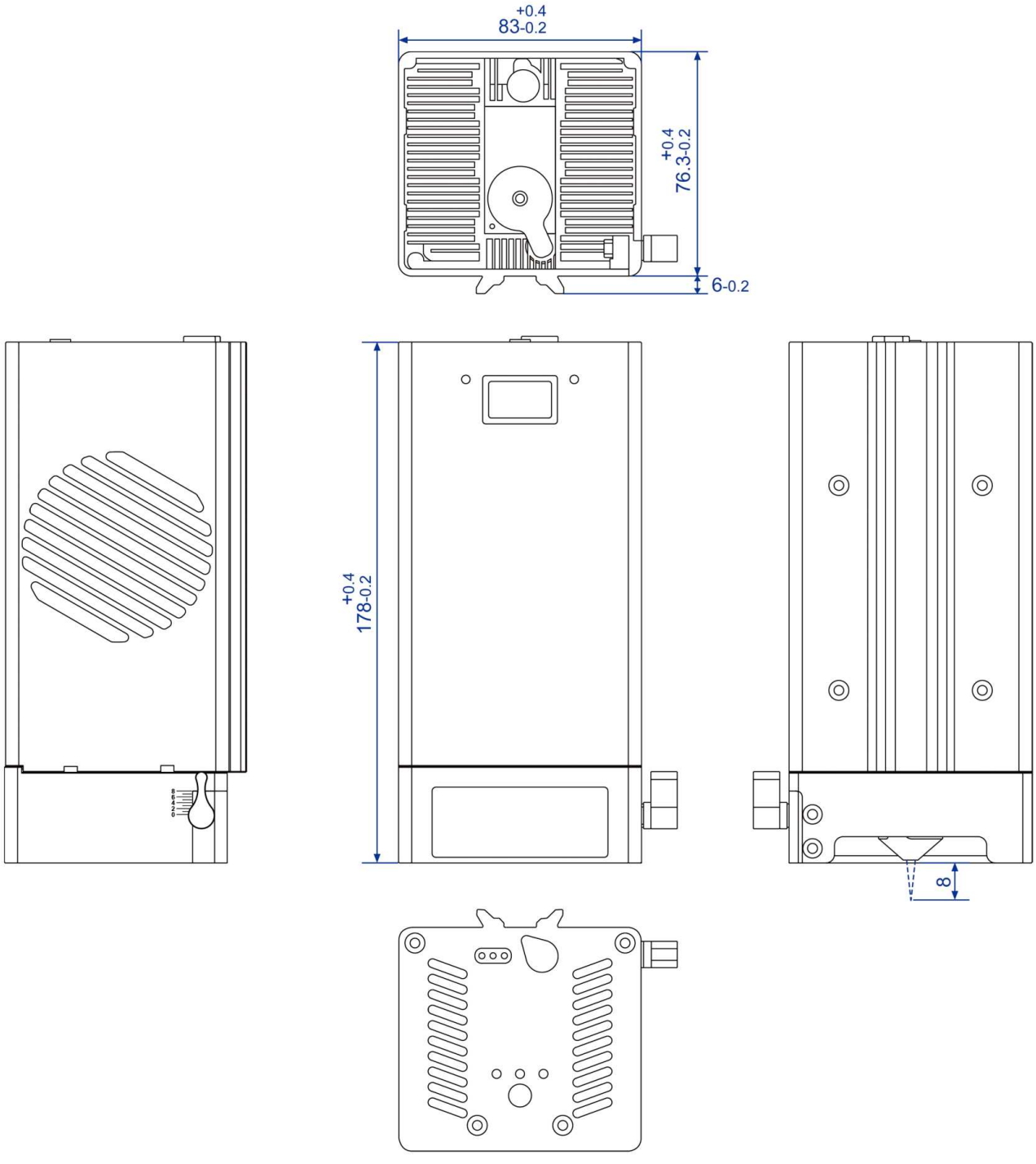
# CONTENT

# 1. PRODUCT INTRODUCTION

## 1.1 Parameters

| | |
|---|---|
| Model | LT-K60 |
| Optical power | 20W/40W/60W (Adjustable) |
| Input | DC24V 10A |
| Wavelength | 450nm (±10nm) |
| Focus length | 40mm |
| Power adjustable | TTL/PWM |
| PWM modulation | 0/3-12V, 0-5kHz |
| Interface | MR30 Port (DC 24V, GND, PWM) |
| Air assistance | Built-in airway |
| Fan speed | Dual fans, 6000rpm |
| Operating temperature | 0-60℃ |
| Module weight | 1263g |
| Material | Aluminum & Copper |
| Application | Engraving & Cutting |

## 1.2 Outline dimension (Unit: mm)



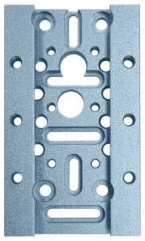
## 1.3 Packing list


Laser Module *1

Input Cable *1


Driver Adapter2.0 *1

Spare
protective lens *2



Sliding Plate *1

Adjusting screw
M4*30 *2

2mm L-wrench *1

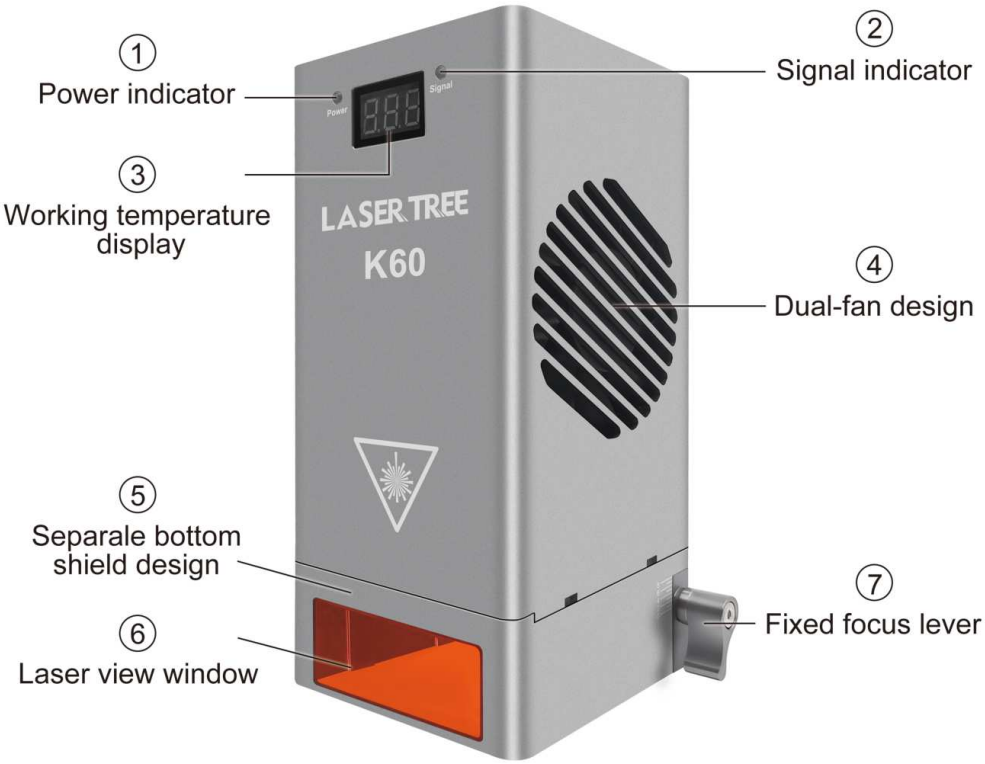

Air tube *1

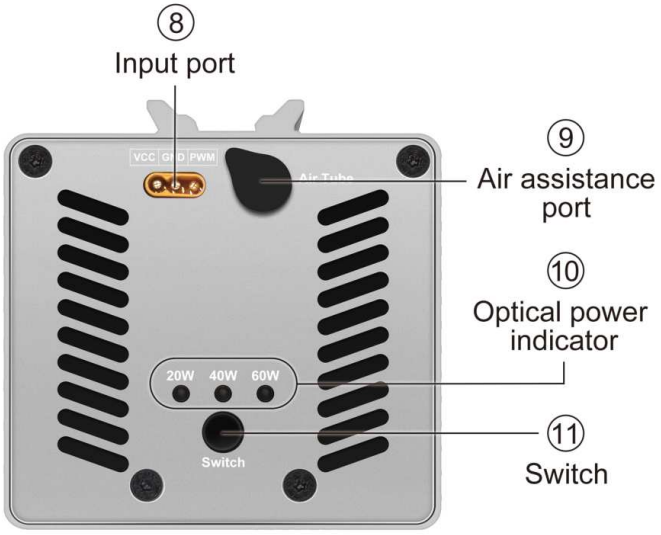
Power Adapter*1

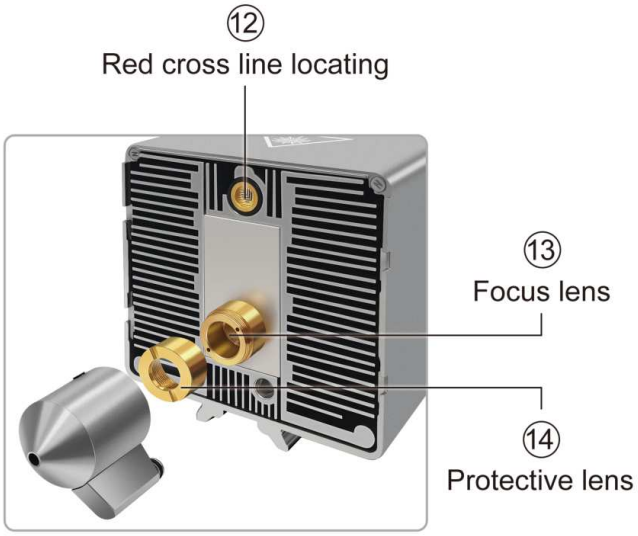
Power Cable *1

# 2. PRODUCT DESCRIPTION

## 2.1 Overview



## ① Power indicator

It is red when power supply is connected.

## ② Signal indicator

It is green when signal is received.

## ③ Working temperature display

The output power stability and life time of laser module has strong relationship with working temperature of laser diode. K60 built-in a thermistor at the highest temperature point near the laser diode, the operating temperature of the diode can be displayed on the digital tube in real-time.

When the working temperature of the laser module is higher than 55°C, the buzzer will sound an alarm.

To get good power stability and durability, It is suggested to keep the module working temperature below 55°C and environmental temperature below 35°C.

## ⑥ Laser view window

The optical glass window is fire-resistant and anti-blue light.

## ⑦ Fixed focus lever

Equipped with fixed focus lever, you can easily adjust the fixed focus distance according to different engraving and cutting requirements.

## ⑧ Input port

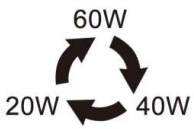
MR30 pluggable connector (24V, GND, PWM)

## ⑨ Air assistance port

Built-in air assist to get clean-cut edges and improve cutting performance.
Air pump suggestion:

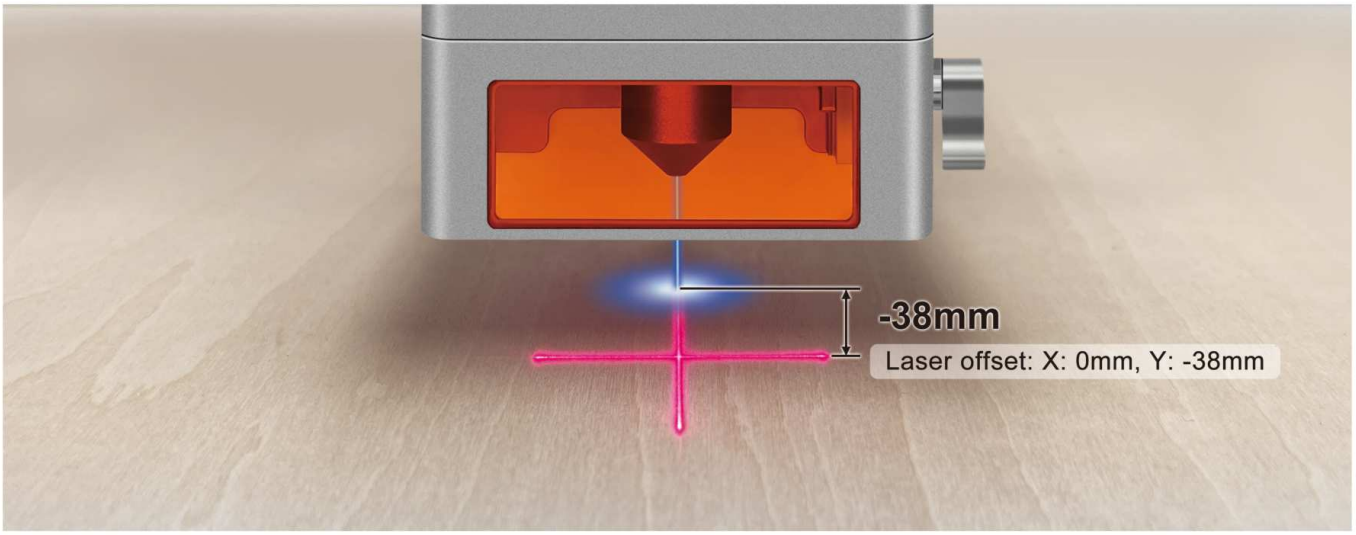
- Air pressure and capacity: ≥0.027kPa, 27L/min
- Air tube: outer diameter 8mm and inner diameter 5mm

## ⑪ Switch

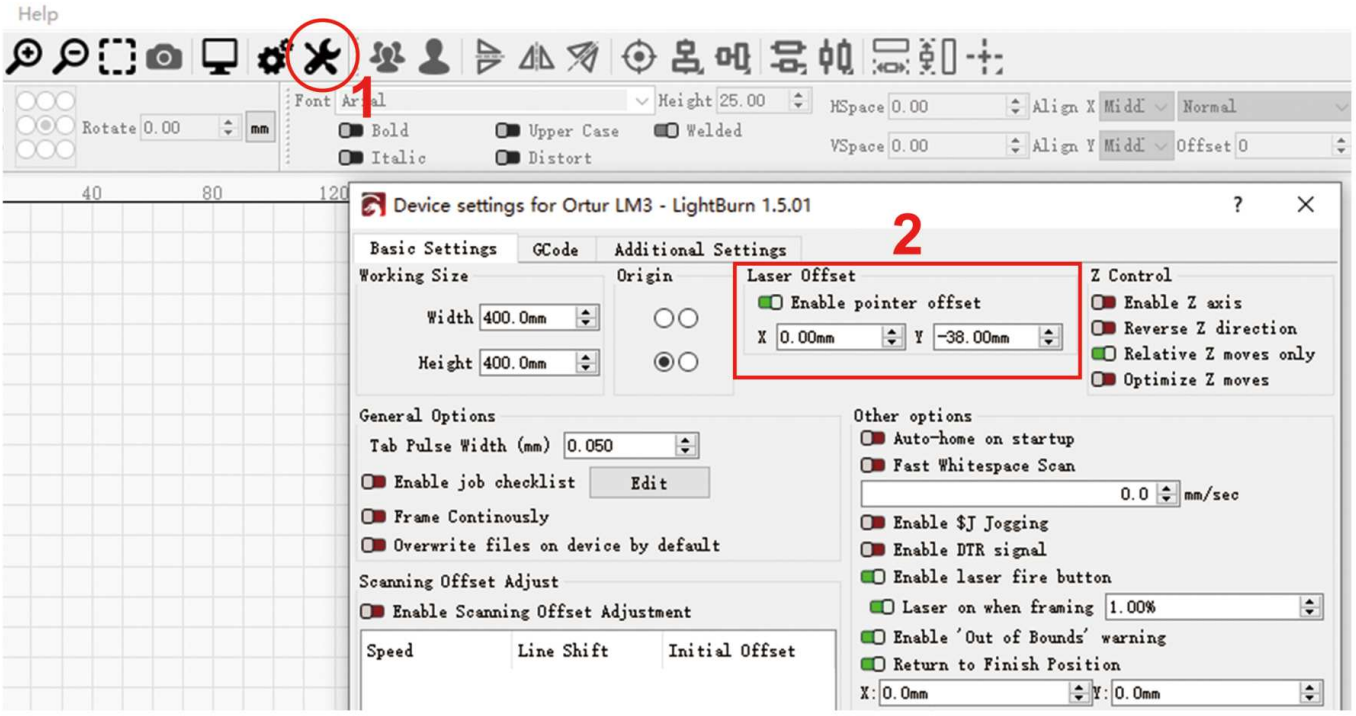
| Function 1 | Function 2 | |
|---|---|---|
| When an over-temperature alarm occurs, press once can turn off the buzzer alarm sound. | The default power is 60W optical power, long press 5S to enter the power switching mode, switch to 40W optical power. Continuous short press can switch the optical power. | Optical power switching sequence   |

## ⑫ Red cross line locating

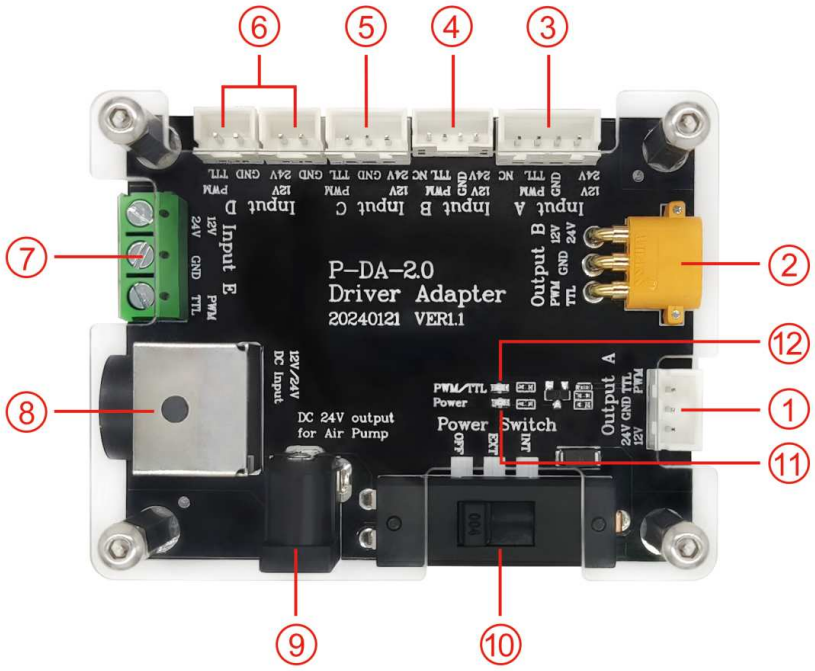
Help you to place the material to the position correctly.




LightBurn settings



## 2.2 Driver adapter (Model: P-DA-02)

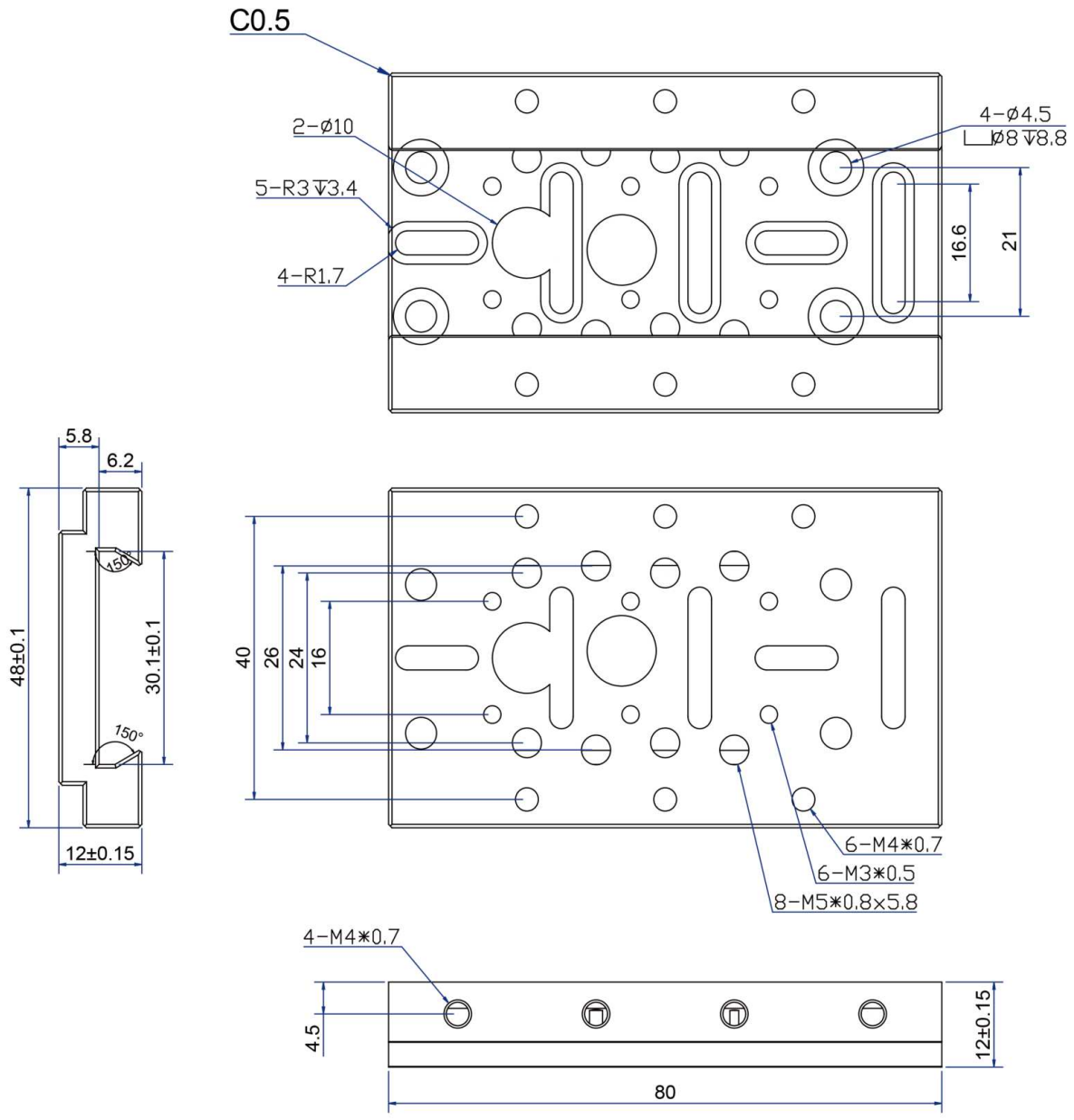



| | |
|---|---|
| ① Output A: XH2.54-3Pin | ② Output B: MR30-M |
| ③ Input A: XH2.54-4Pin | ④ Input B: PH2.0-4Pin |
| ⑤ Input C: XH2.54-3Pin | ⑥ Input D: XH2.54-2Pin |
| ⑦ Input E: KF350-3Pin | ⑧ 12V/24V DC Input: 4Pin |
| ⑨ 24V output for air pump: DC5.5*2.1mm | |
| ⑩ Power Switch: • OFF—Power off • EXT—External power supply • INT—Internal power supply | |
| ⑪ TTL/PWM indicator: It is green when the TTL/PWM signal is received. | |
| ⑫ Power indicator: It is red when the power cable is connected correctly. | |

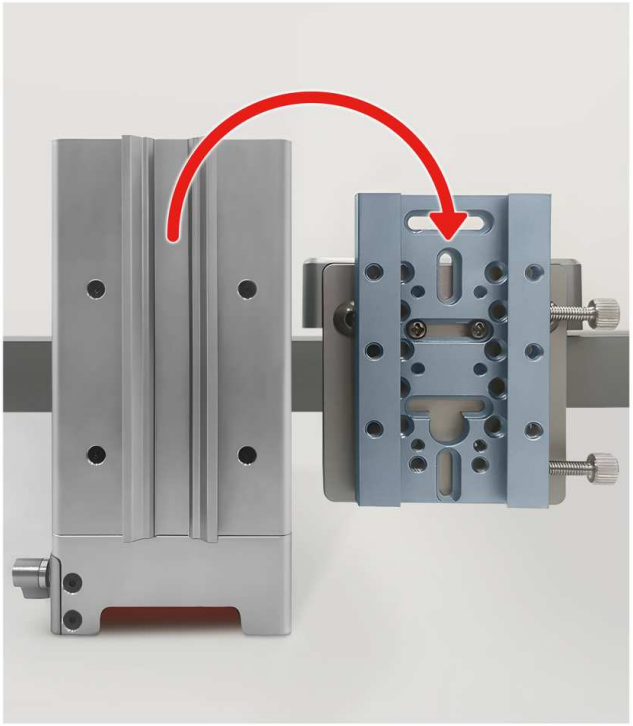
## 2.3 Sliding plate

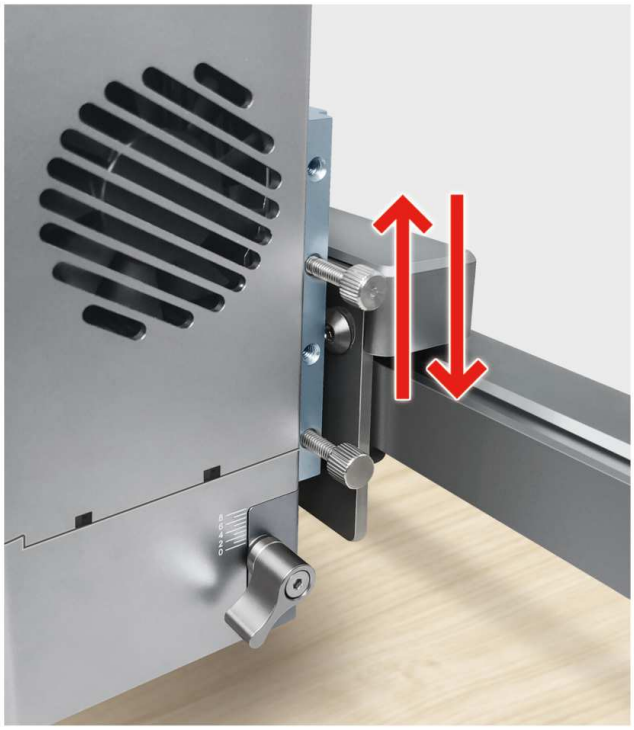
Multiple holes bring you widely installation compatibility.

Outline dimension (Unit: mm)

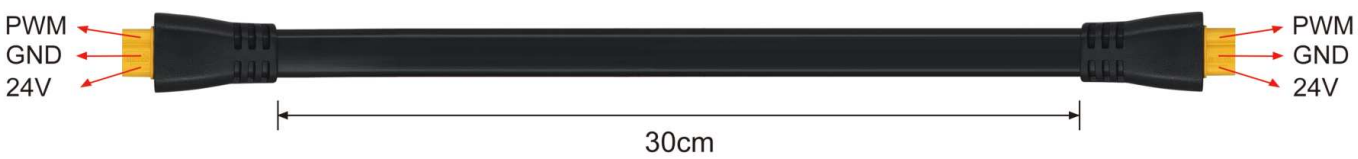


Installation for sliding plate





## 2.4 PIN definition

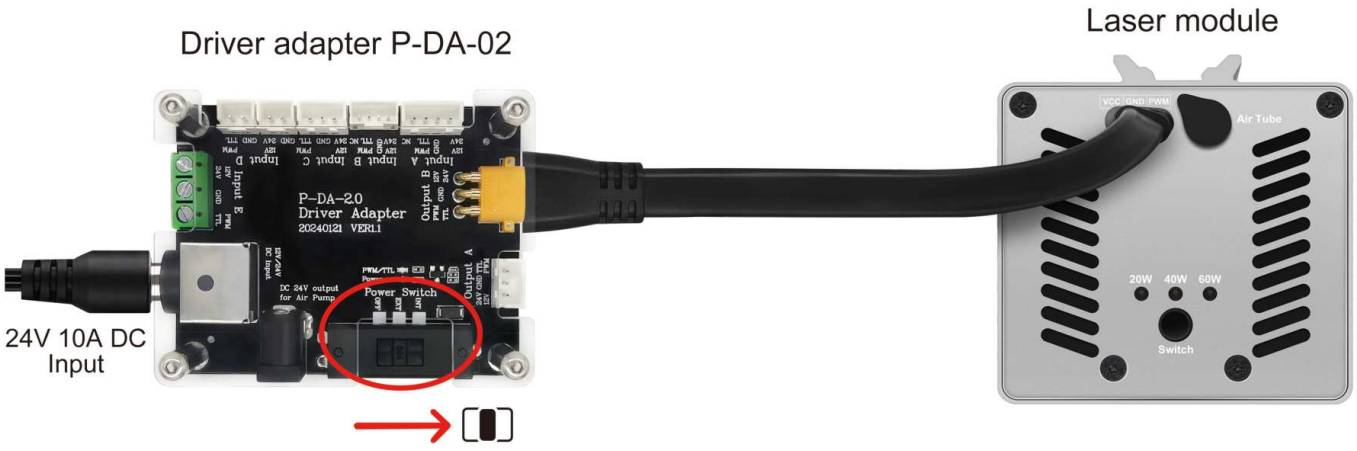


# 3. CONNECTION DESCRIPTION

Please check whether there is a PWM/TTL and GND output port on the engraver main board before connection.

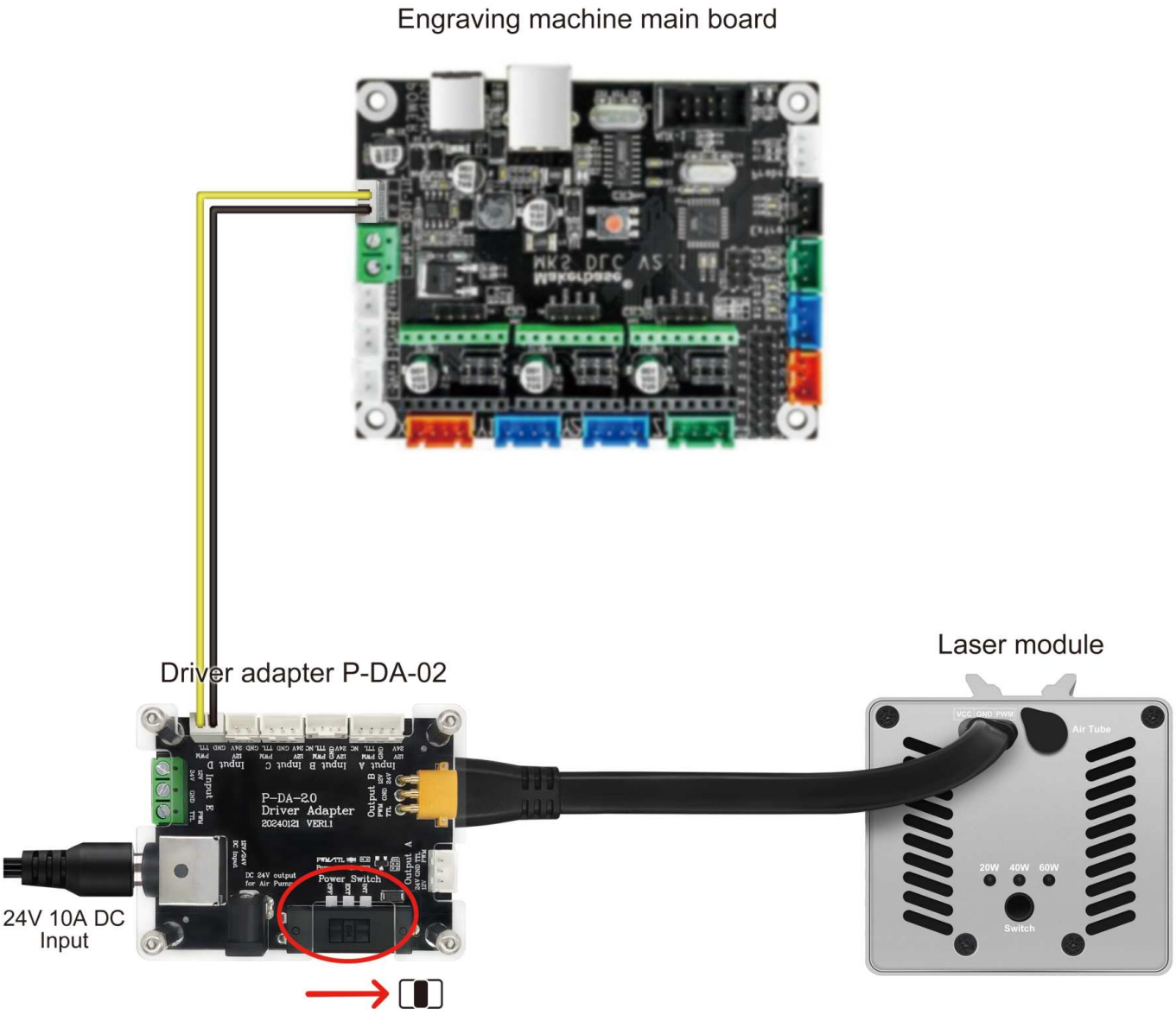
Step1 Connect one end of the input cable to the laser module and the other end to the corresponding output B port on the driver adapter.


Step2 Connect the 24V power adapter to the DC input connector on driver adapter.
Push the switch to "EXT" position and the power is provided by external power adapter.



Step3 Connect the engraving machine main board cable to the corresponding input port on drive adapter.

(The picture below is a connection example. For more Input ports, please refer to the driver adapter description on page 7.)

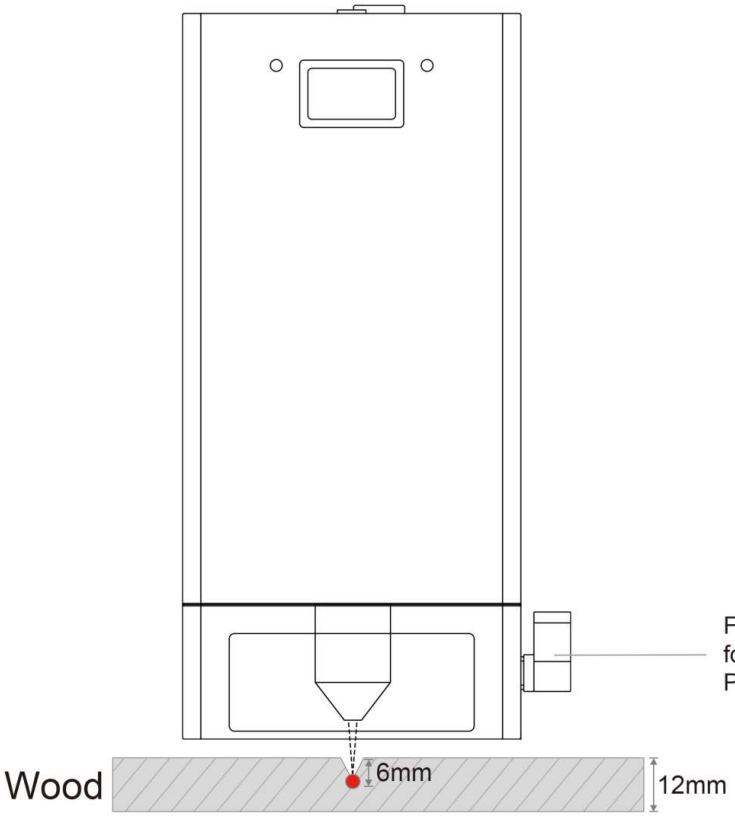


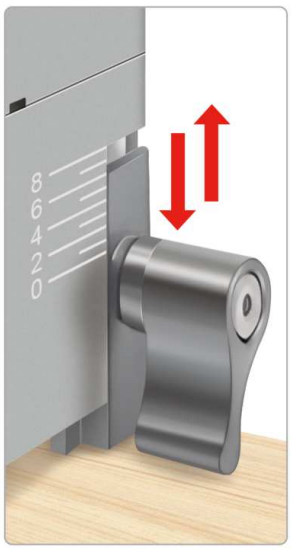
# 4. FOCUS REFERENCE SETTINGS

The K60 focal length is 40mm.

## 4.1 For cutting

Please make the focus locate lower than the cutting material surface according to the following.



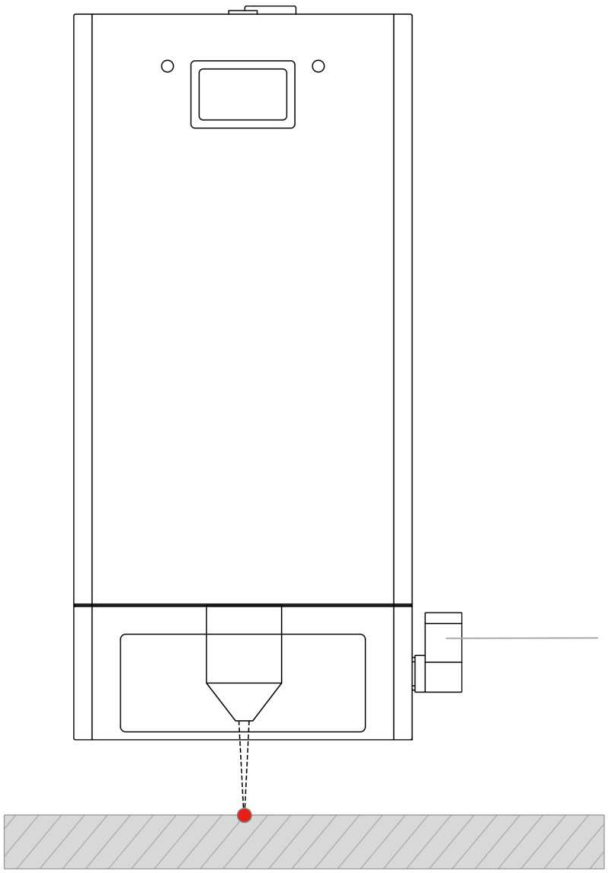



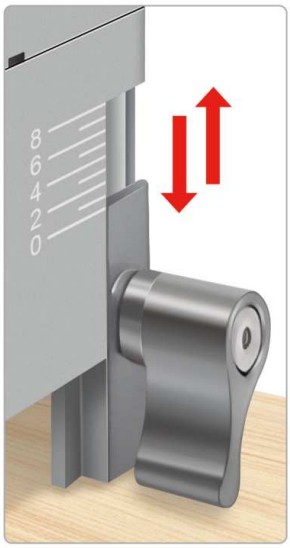

For example, if yo want to cut 12mm material, the focus should be 6mm lower than material surface. Please adjust the fixed focus lever to 6mm.

| Reference settings for cutting | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Material thickness** | < 5mm | 5mm | 8mm | 10mm | 12mm | 15mm | ⩾30mm |
| **Fixed focus lever** | 0mm | 2mm | 4mm | 5mm | 6mm | 7mm | 7mm |

## 4.2 For engraving

Please make the focus locate on the engraving material surface.






For example, if you want to perform engraving, just adjust the fixed focus lever to 0mm.

Engraving material

| Reference settings for engraving | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Parameter Material | Fixed focus lever (mm) | Speed (mm/min) | | | Max Power | | | Line Interval |
| | | 20W | 40W | 60W | 20W | 40W | 60W | |
| Basswood Plywood | 0 | 12000 | 15000 | 18000 | 50% | 45% | 30% | 0.05 |
| Pine Board | 0 | 10000 | 12000 | 15000 | 55% | 50% | 40% | 0.05 |
| Corrugated Board | 0 | 15000 | 18000 | 20000 | 22% | 18% | 13% | 0.05 |
| Stainless Steel | 0 | 9000 | 10000 | 13000 | 60% | 70% | 80% | 0.01 |
| Titanium plate | 0 | 9600 | 10800 | 12000 | 32% | 36% | 40% | 0.05 |

# 5. PRECAUTIONS

- Laser may cause damage to your skin. Please do not expose your skin directly to the laser.
- Please wear laser goggles to protect your eyes when you use this laser module.
- Please ensure that the air pump is turned on before you start cutting. If not, the smoke will contaminate the lens.
- This laser module doesn't support hot plug, hot plug may cause damage to the laser module.

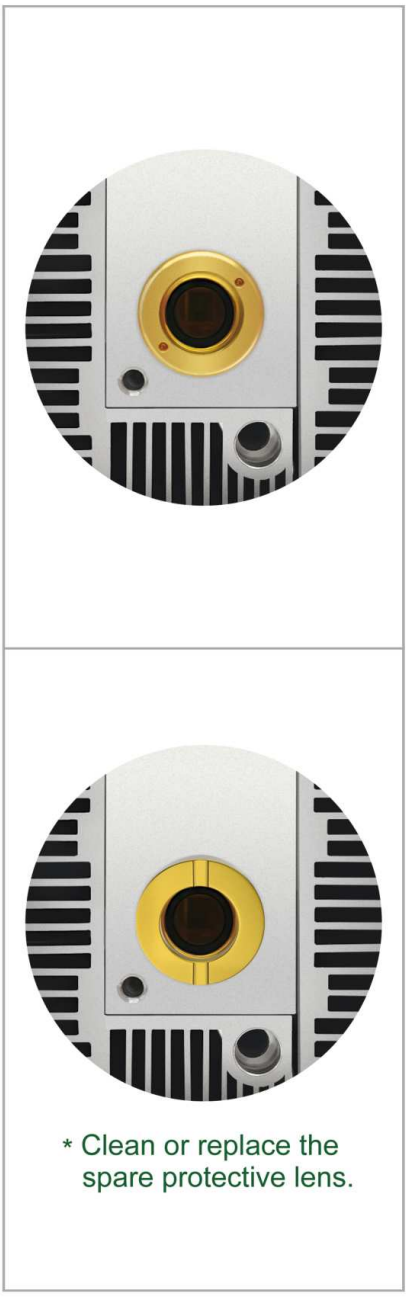
# 6. MAINTENANCE

- When the laser module is not used for a long time, please ensure that the lens is not polluted by dust.
- When you replace the air nozzle, please ensure that your operation will not pollute the lens. Finger prints or dust on the lens will weaken the output power of the laser module, or even damage the lens.
- When you find the cutting ability of laser module decreased, the lens might be not clean. Please use a clean alcohol swab to clean it according to the following figure.

* For more information about maintenance, please contact us at lasertree@micost-optotech.com.

## ⚠ Caution for lens cleaning:

- Make sure the engraving module is disconnected from the power supply before wiping the lens.
- After wiping, allow the lenses to dry naturally for 3 to 5 minutes before use.

LASER TREE

Enjoy pleasure of DIY

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MADE IN CHINA

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