



# K30

## USER MANUAL



# SAFETY STATEMENT

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The laser engraving module has high energy density and is classified as a Class 4 laser device. Before using this module, please read and strictly follow the safety provisions below.

- (1) Appropriate safety measures must be taken during operation, including wearing qualified laser safety goggles.
- (2) The laser engraving module is not a toy. Children are strictly prohibited from using it. Untrained personnel and minors are also strictly prohibited from using it.
- (3) Never direct the laser output at humans or live animals.
- (4) Never look directly into the laser beam or its specular reflections.
- (5) Never leave the device unattended during operation. The laser may ignite wood, paper, or certain plastics. If flames or an abnormal increase in smoke are observed, stop the machine immediately.
- (6) Never modify the laser power or circuitry. Without the manufacturer's permission, do not increase the laser drive current, replace the laser tube with a higher-power version, or modify the control circuit. Operating beyond the rated power may cause the laser window to burst, fire, or electric shock.
- (7) Before use, remove debris and flammable/explosive materials to avoid unnecessary damage to the laser device and prevent fire.
- (8) Before use, check whether the material releases toxic gases when burned. Avoid poisoning.
- (9) While the laser engraving module is running, do not place your hands in the work area. If any abnormality occurs during engraving, immediately cut off the power supply and stop the machine.
- (10) Ensure that a fire extinguisher is placed near the laser engraving machine and perform regular maintenance and inspections to respond promptly to potential incidents.



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# 1. PRODUCT INTRODUCTION

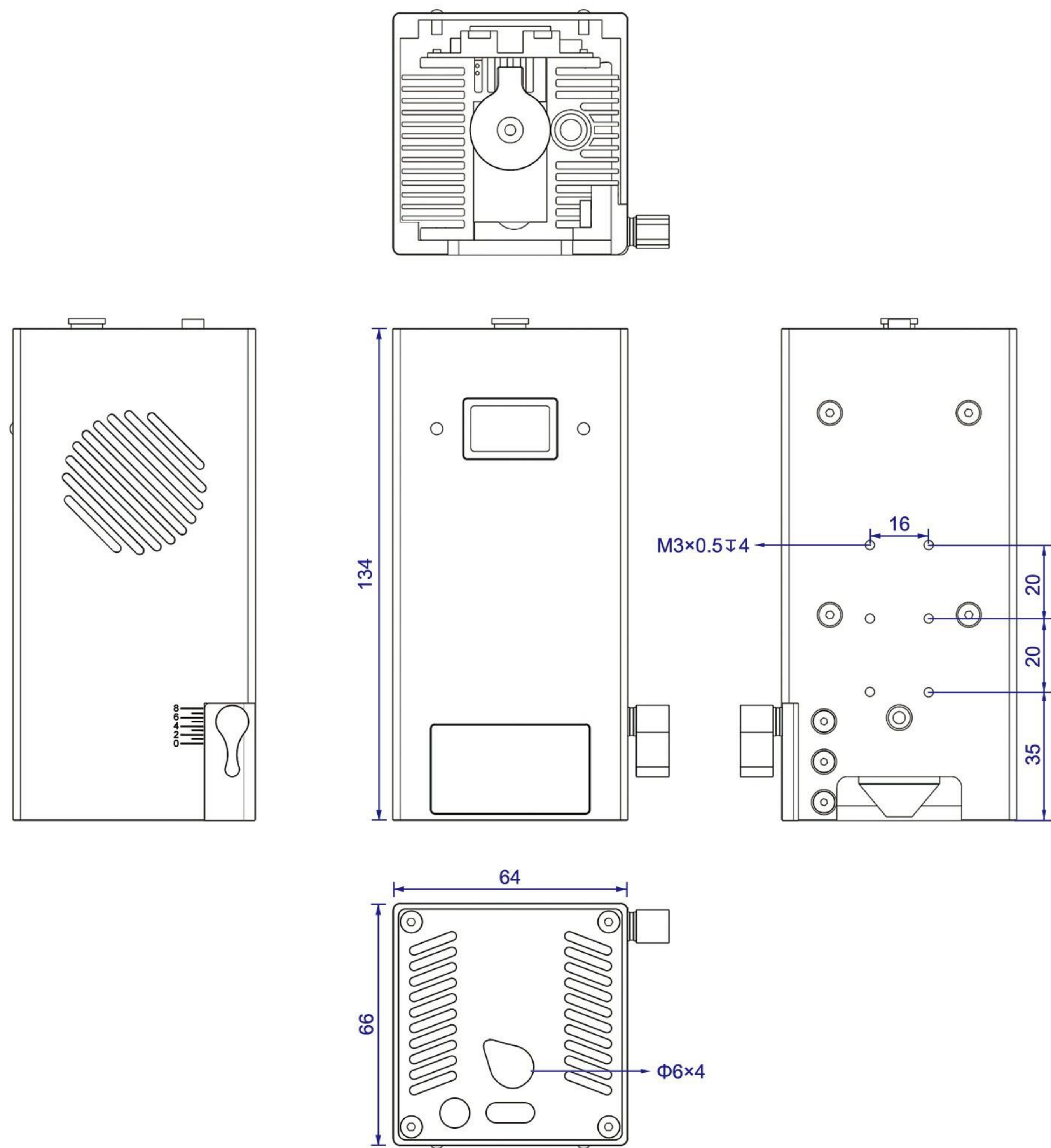
## Parameters

|                        |                              |
|------------------------|------------------------------|
| Model:                 | K30                          |
| Optical power:         | 28-32W                       |
| Input:                 | 24V 5A                       |
| Wavelength:            | 450nm (±10nm)                |
| Focus length:          | 40mm                         |
| Air assistance:        | Built-in airway              |
| Power adjustable:      | TTL/PWM                      |
| PWM modulation:        | 0/3-12V, 0-5kHz              |
| Fan speed:             | 6000rpm                      |
| Operating temperature: | 0-35°C                       |
| Interface:             | MR30 Port (DC 24V, GND, PWM) |
| Cable:                 | 3PIN                         |
| Material:              | Aluminum & Copper            |
| Module weight:         | 710g                         |
| Application:           | Engraving & Cutting          |





Outline dimension (Unit: mm)





 Packing list



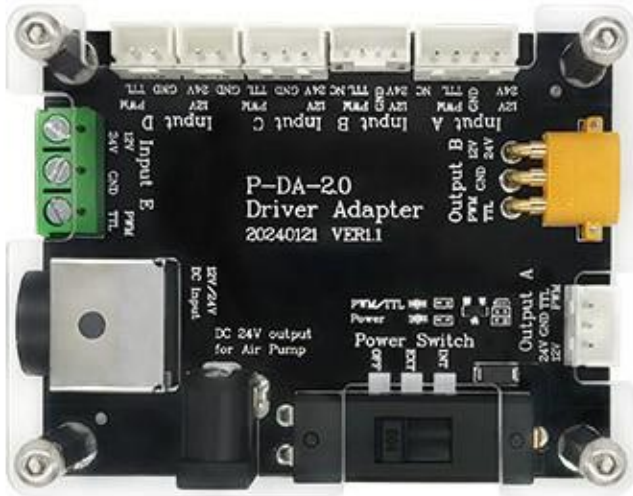
Laser module



Sliding plate



2mm L-wrench



Driver adapter



24V5A power supply



Spare protective lens



1.5m Air tubex1



Input cable



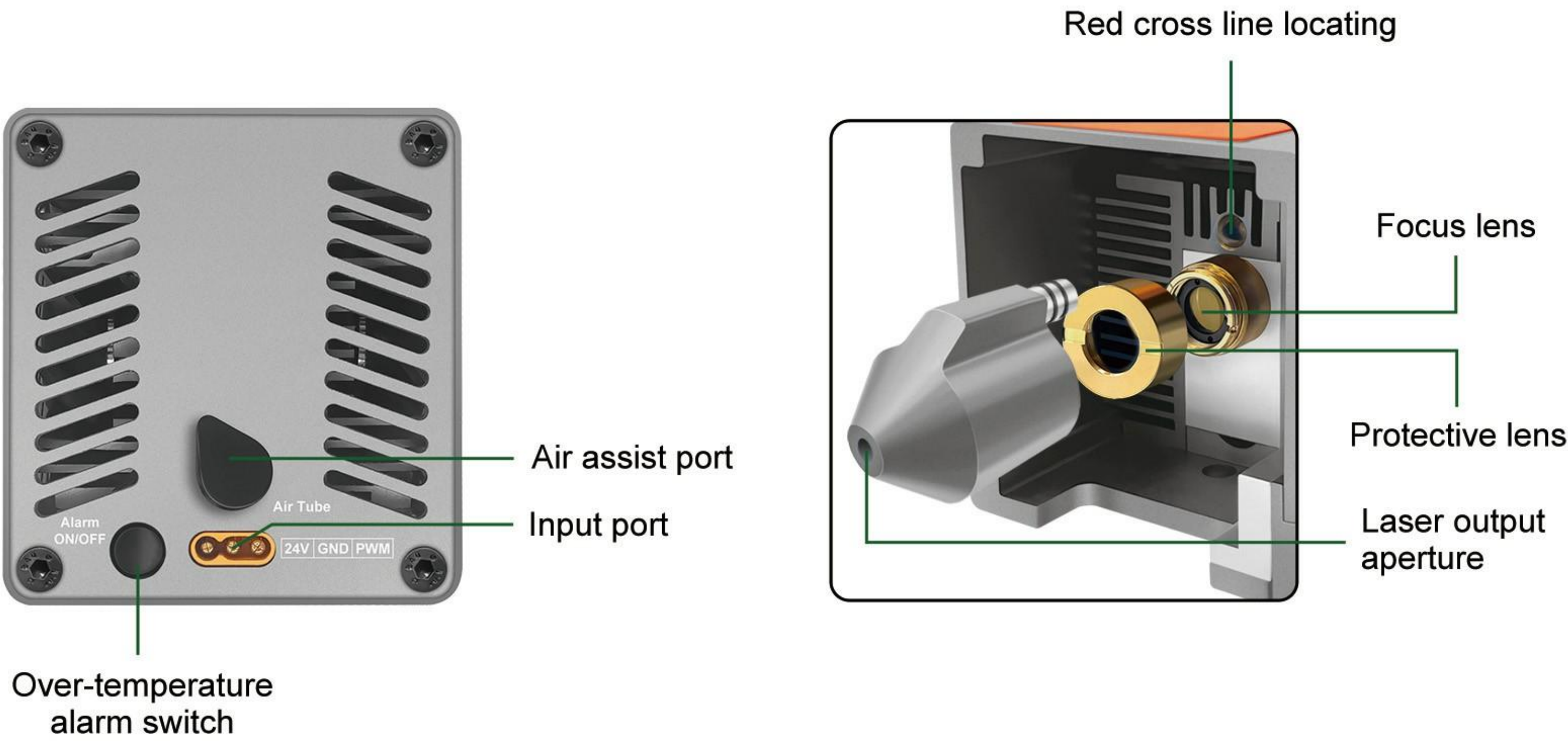
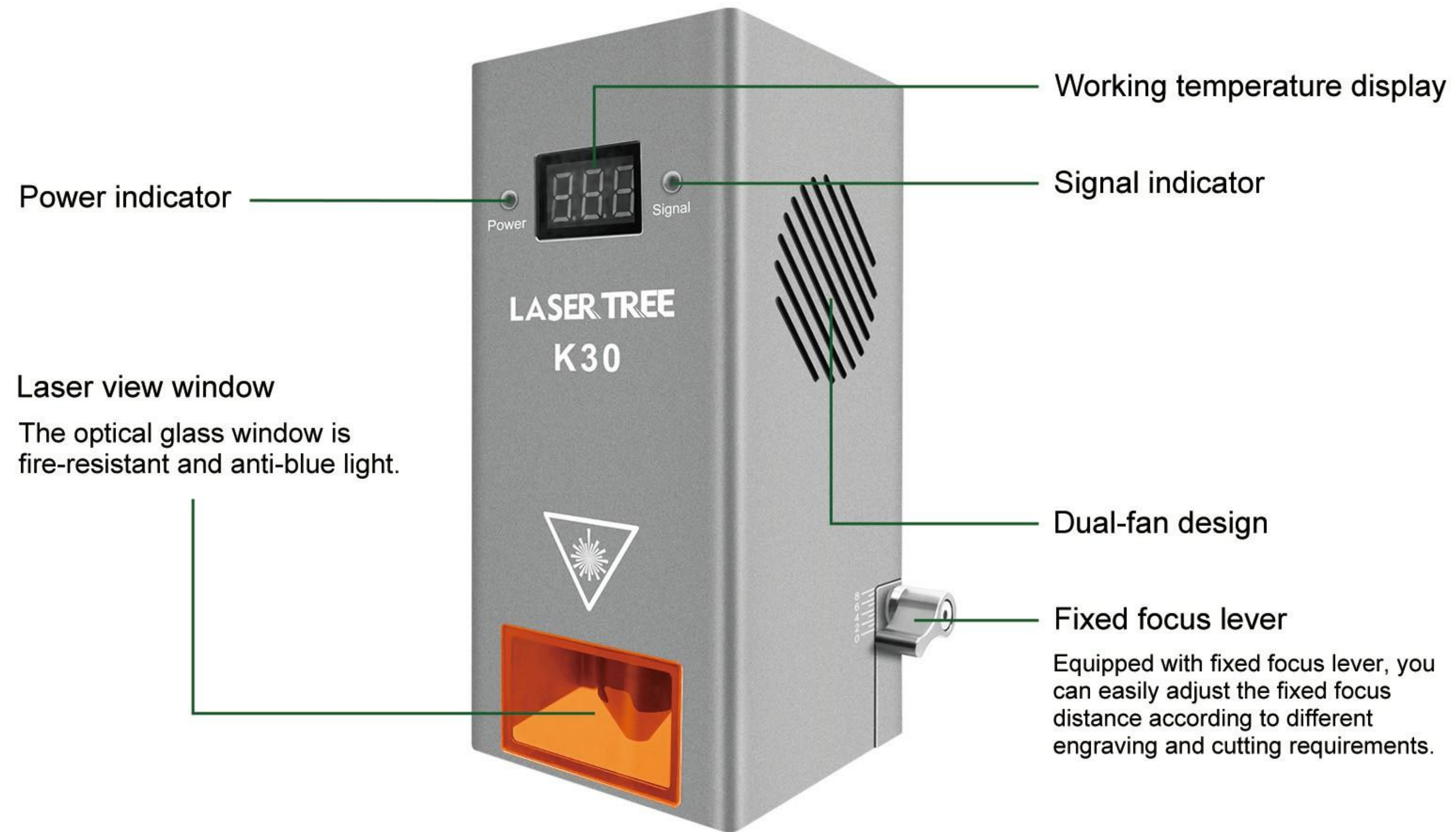
60cm Adapter cable



## 2. PRODUCT DESCRIPTION



### Overview







Input port

Use MR30 Port pluggable connector.

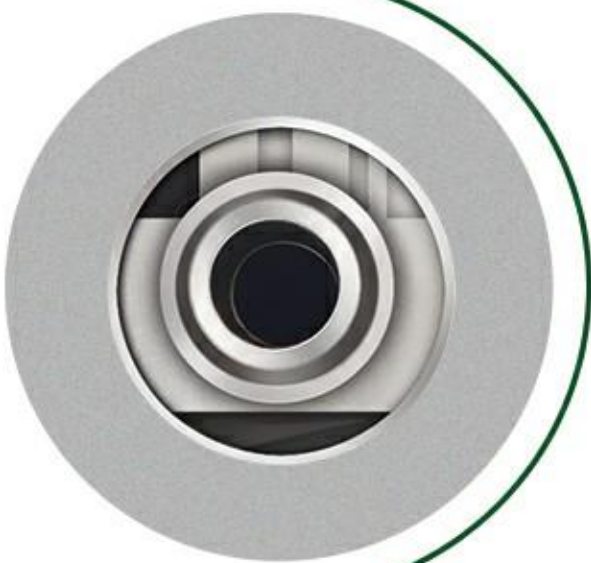
- VCC (24V5A DC)
- GND
- TTL/PWM in (0-5kHz)

Air assistance port

Built-in air assist to get clean-cut edges and improve cutting performance.

Air pump suggestion:

- Air pressure and capacity:  $\geq 0.027\text{kPa}$ , 27L/min
- Air tube: outer diameter 6mm and inner diameter  $\geq 4\text{mm}$



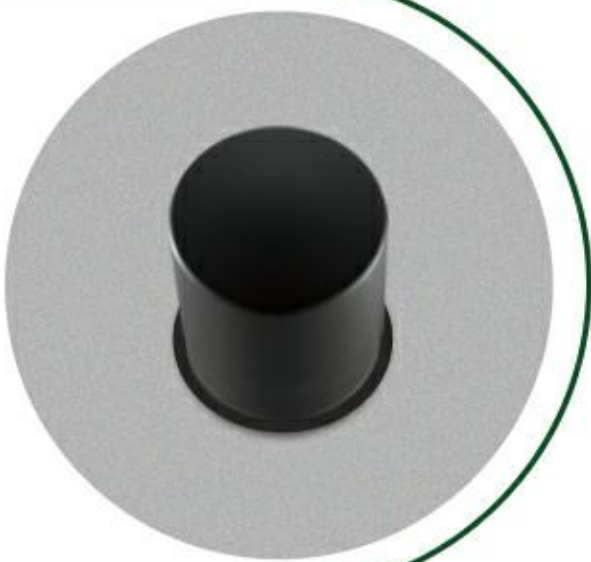
Working temperature display

The output power stability and life time of laser module has strong relationship with working temperature of laser diode.K30 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.

We suggest the working temperature of the laser module is controlled below  $55^{\circ}\text{C}$  and the working environmental temperature below  $35^{\circ}\text{C}$  to get good power stability and durability.

Over-temperature alarm switch

When the working temperature of the laser module is higher than  $55^{\circ}\text{C}$ , the buzzer will sound an alarm.



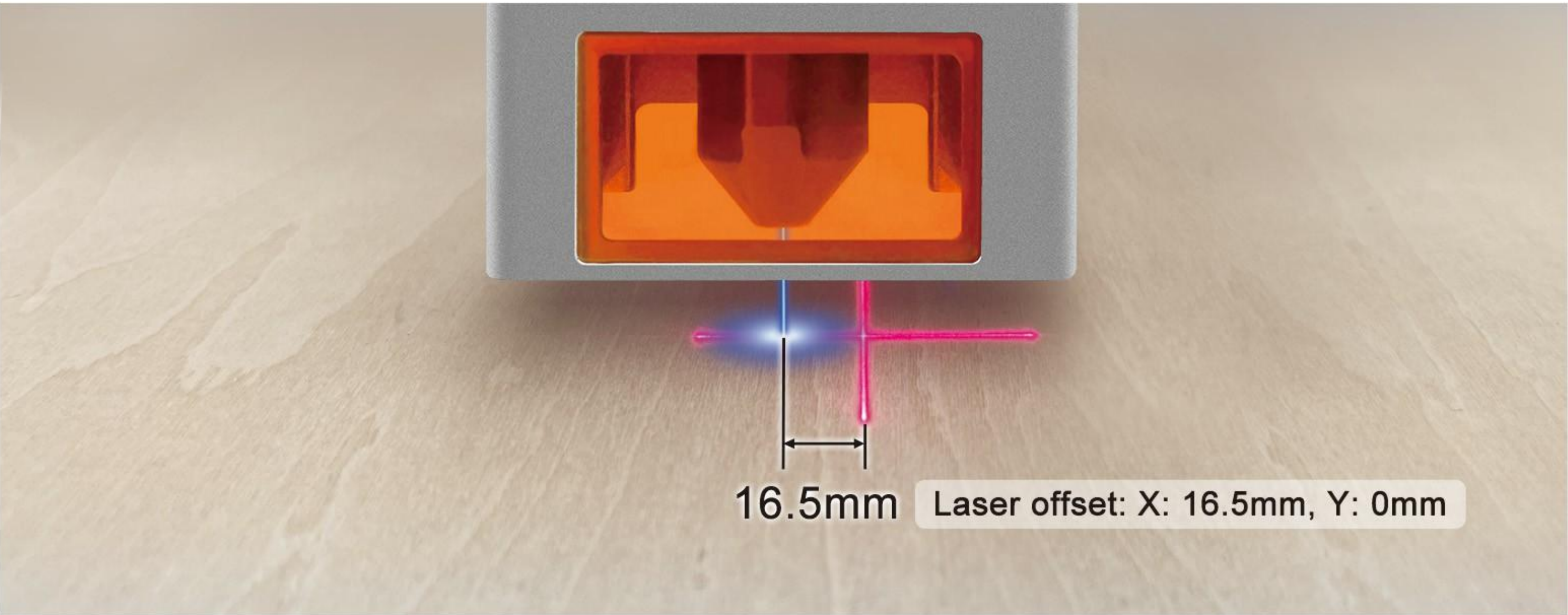
Working status indicator

Power indicator: it is red when power supply is connected.  
Signal indicator: it is green when signal is received.

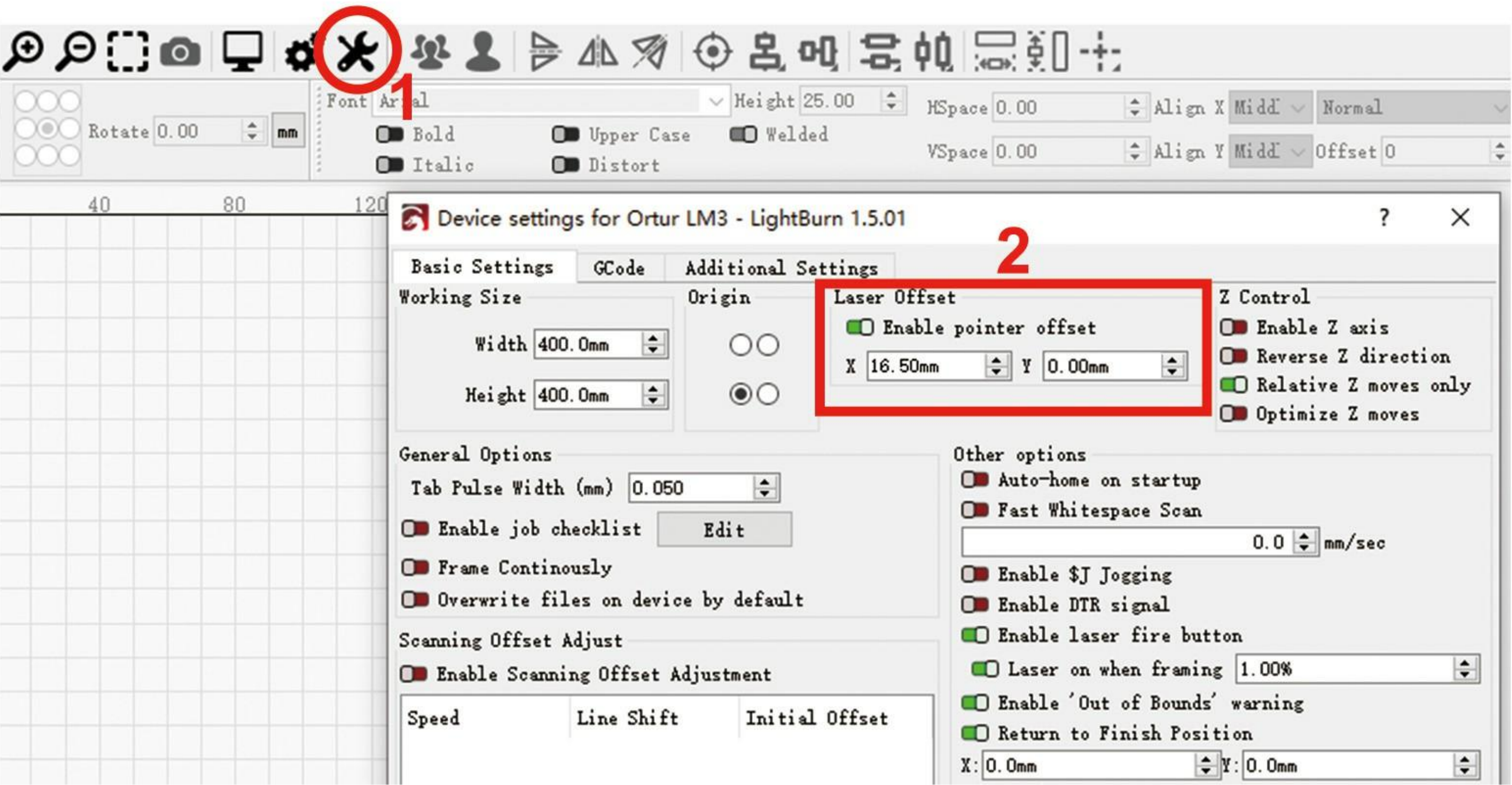


+ Red cross line locating

Help you to place the material to the position correctly.

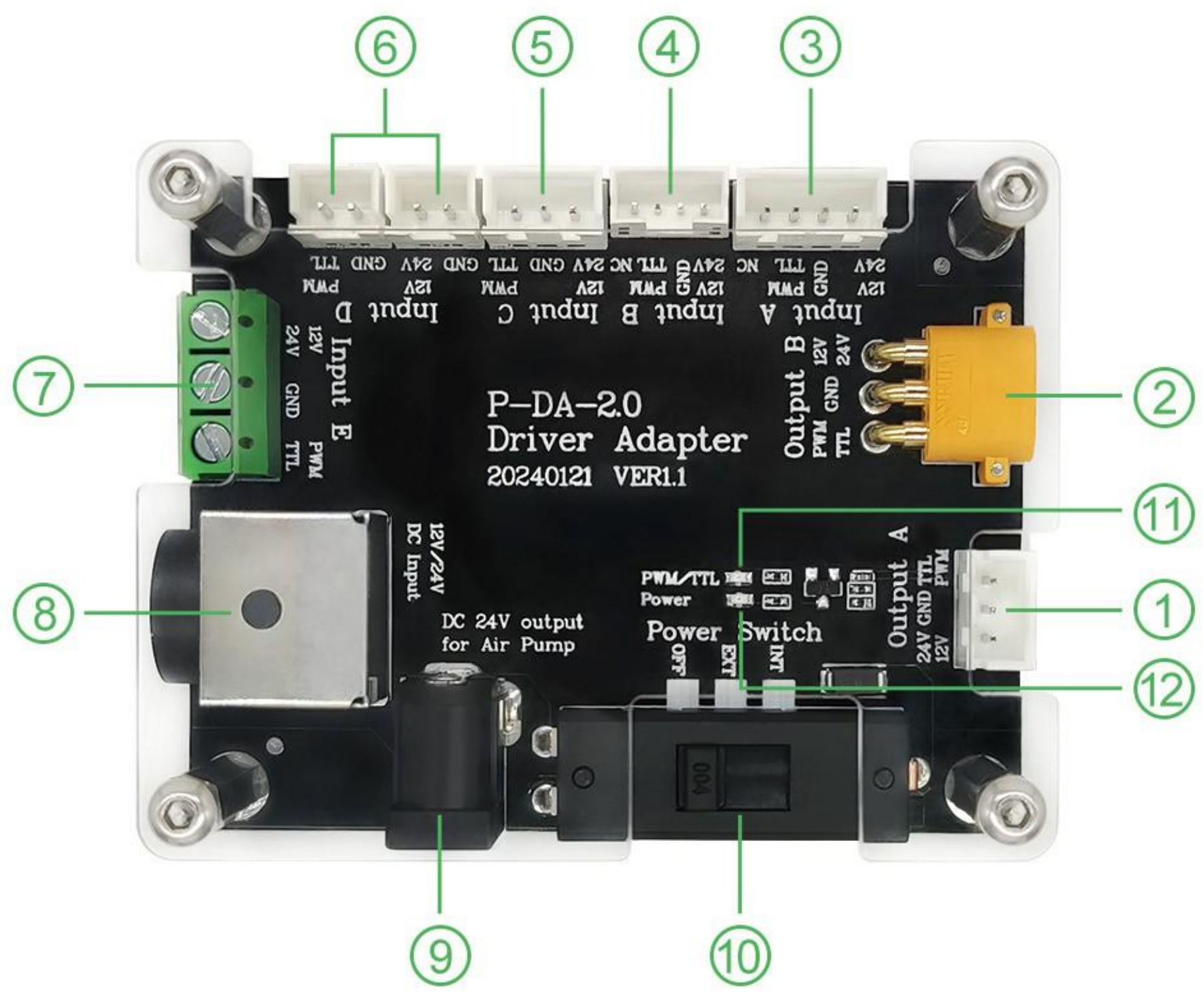


LightBurn settings





 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.               |                          |

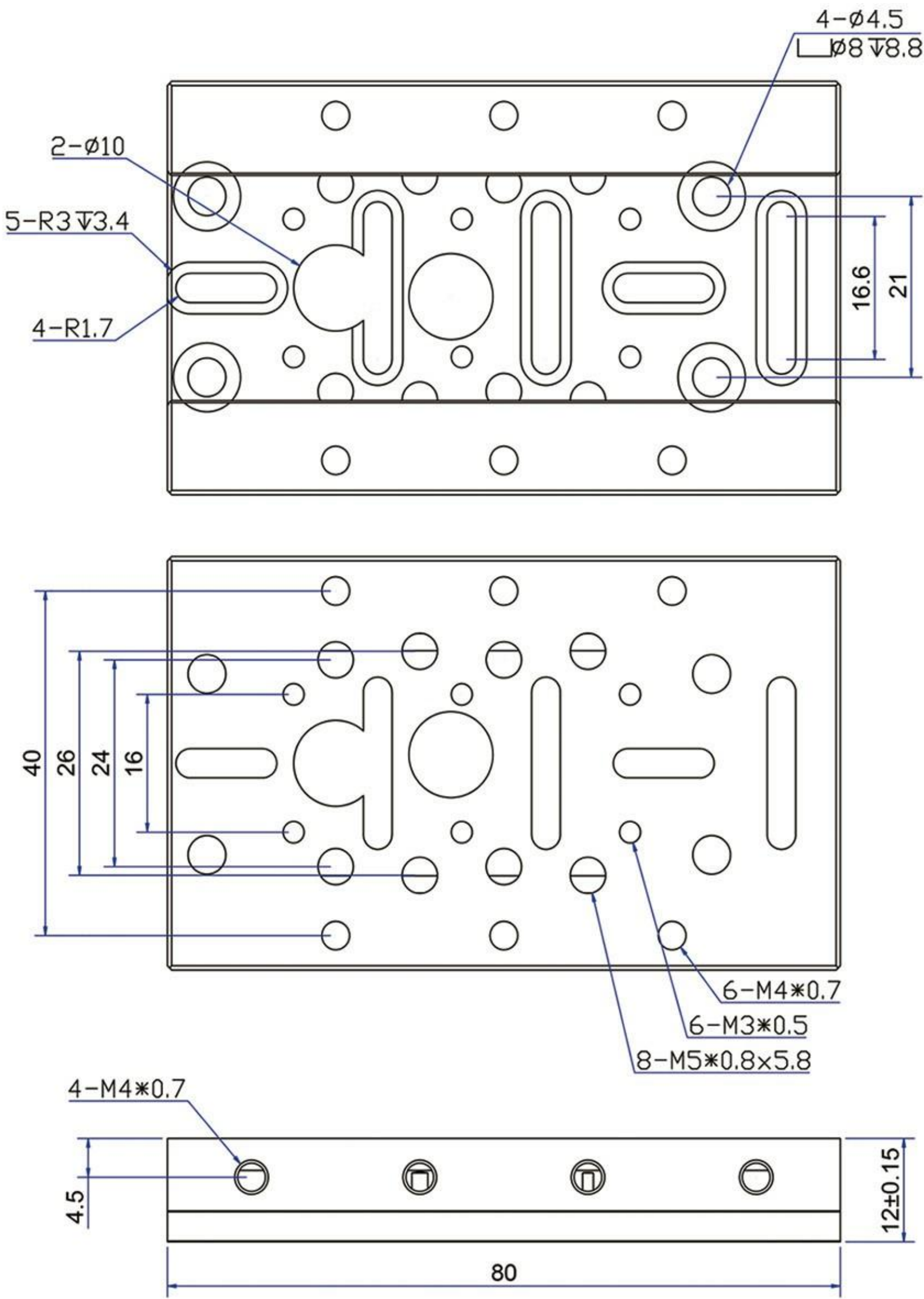
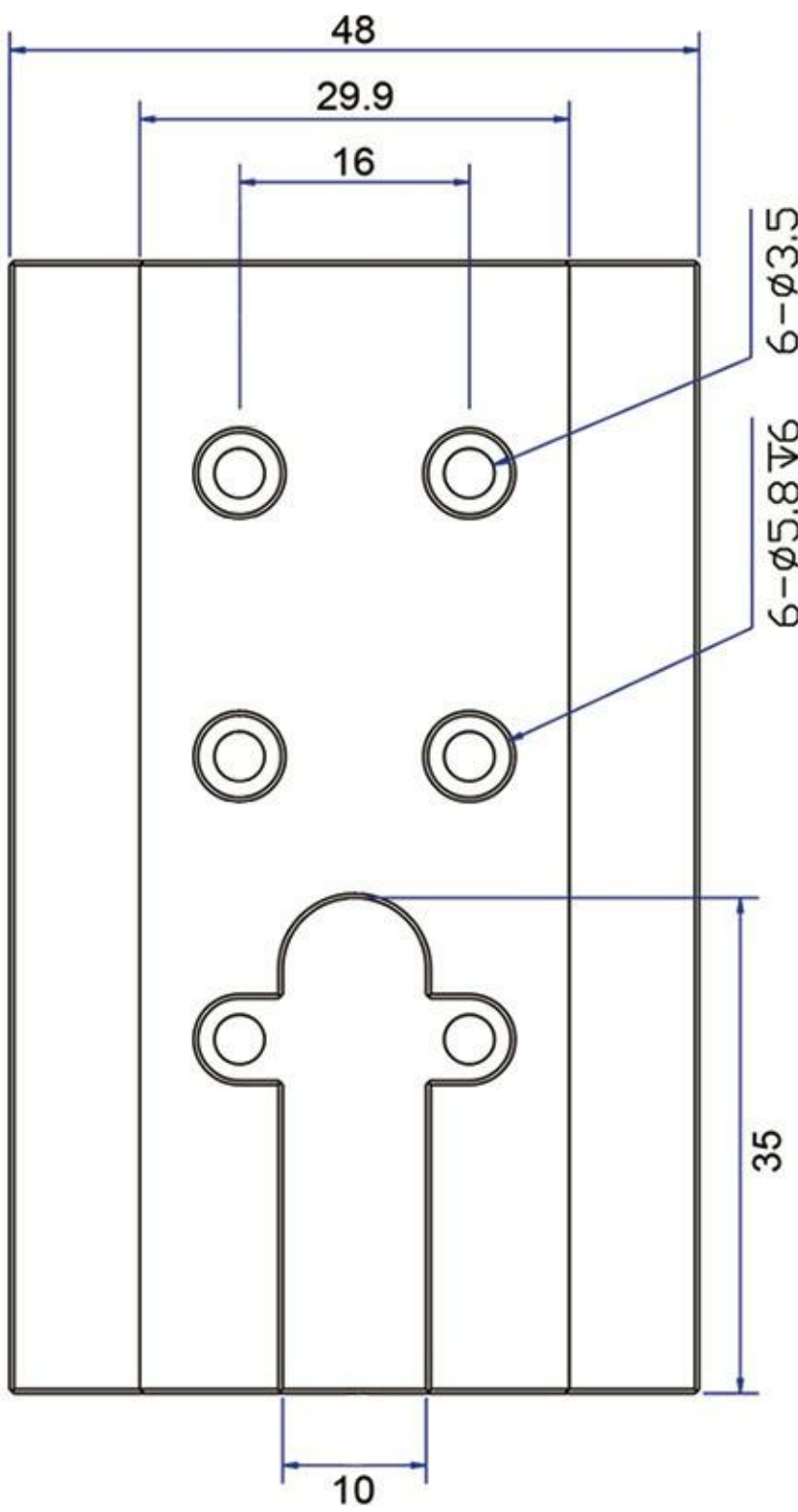




Sliding plate

Multiple holes bring you widely installation compatibility.

Outline dimension (Unit: mm)



Accessories for sliding plate



M3x6 Fasten screw\*4



M4x20 Fasten screw\*2



2.5mm L-wrench



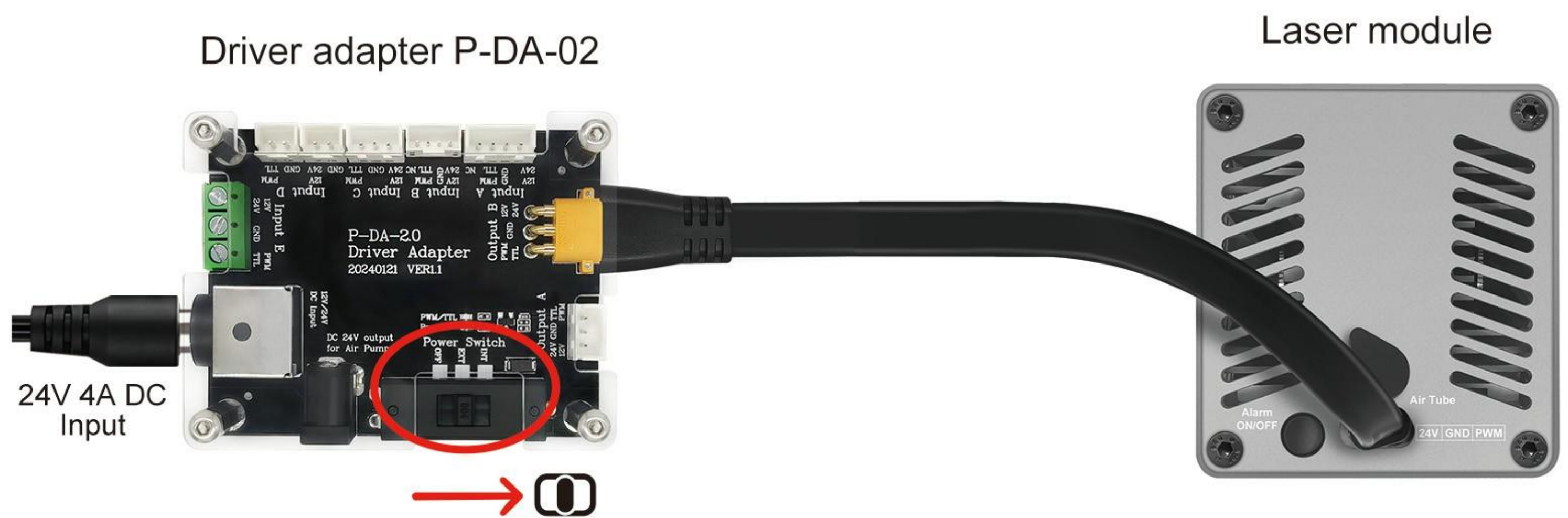
### 3. CONNECTION DESCRIPTION

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.

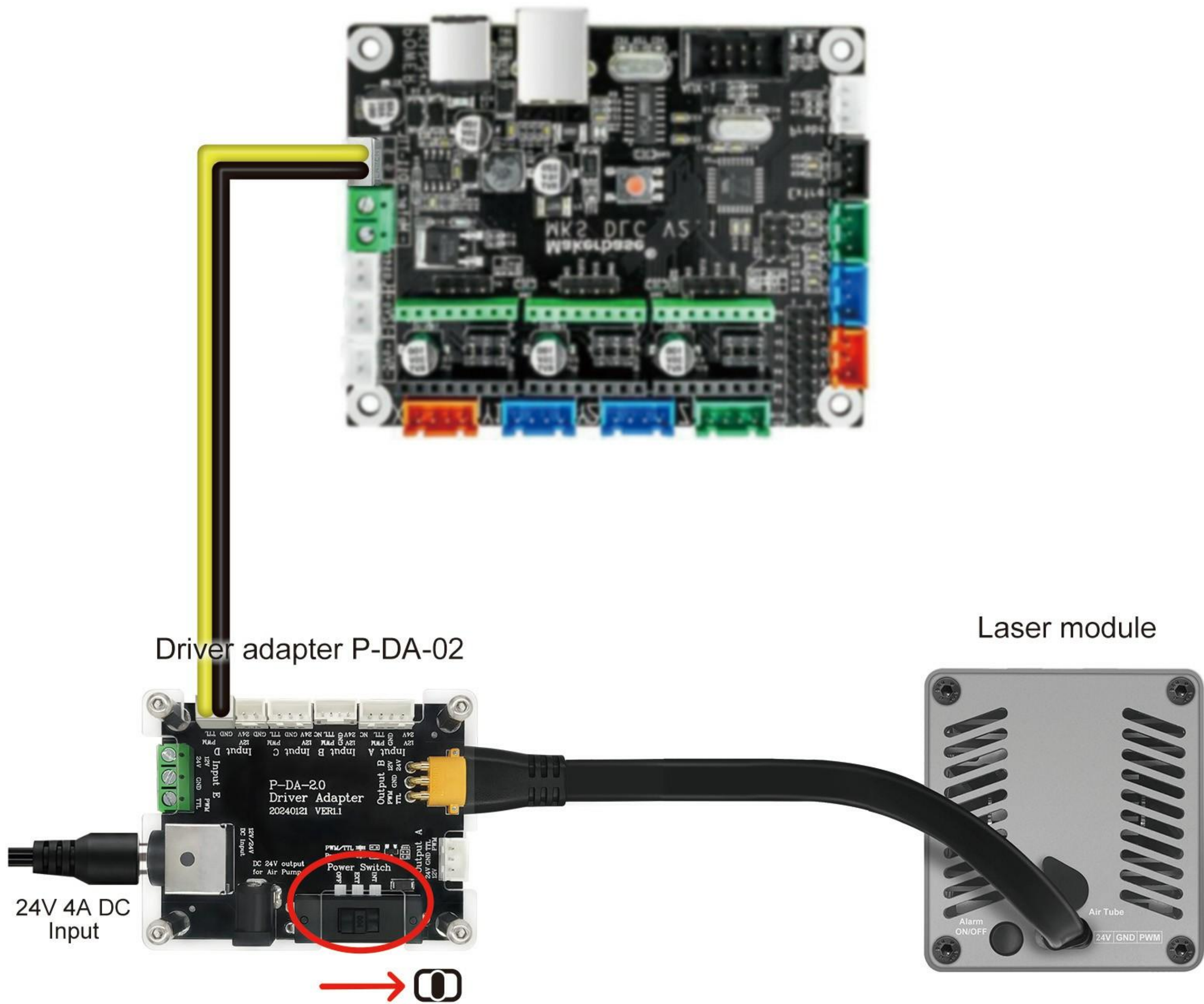




Step3 Connect the engraving machine main board cable to the corresponding input port on drive adapter.

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

Engraving machine main board





# 4. FOCUS REFERENCE SETTINGS

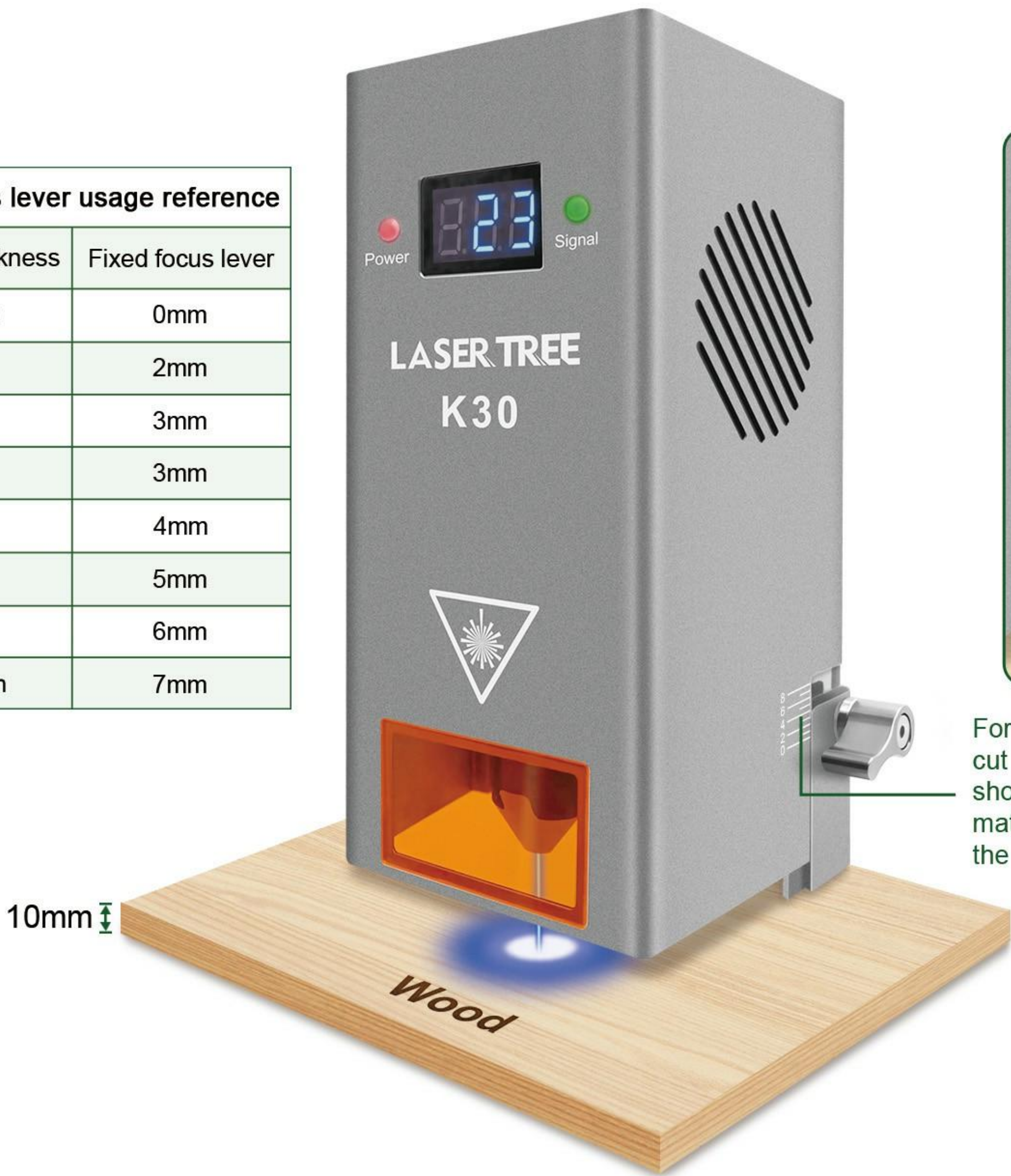
The focal length of the K30 laser module is 40mm.

 For cutting

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

## Reference settings for cutting

| Fixed focus lever usage reference |                   |
|-----------------------------------|-------------------|
| Material thickness                | Fixed focus lever |
| < 5mm                             | 0mm               |
| 5mm                               | 2mm               |
| 6mm                               | 3mm               |
| 8mm                               | 3mm               |
| 10mm                              | 4mm               |
| 12mm                              | 5mm               |
| 15mm                              | 6mm               |
| ≥ 20mm                            | 7mm               |



For example, if you want to cut 10mm material, the focus should be 4mm lower than material surface. Please adjust the fixed focus lever to 4mm.





For engraving

Please make the focus locate on the engraving material surface.

Reference settings for engraving

For example, if you want to perform engraving, just make the focus on the engraving material surface and adjust the fixed focus lever to 0mm.





## 5. MAINTENANCE



When the laser module is not used for a long time, please ensure that the lens is not polluted by dust.



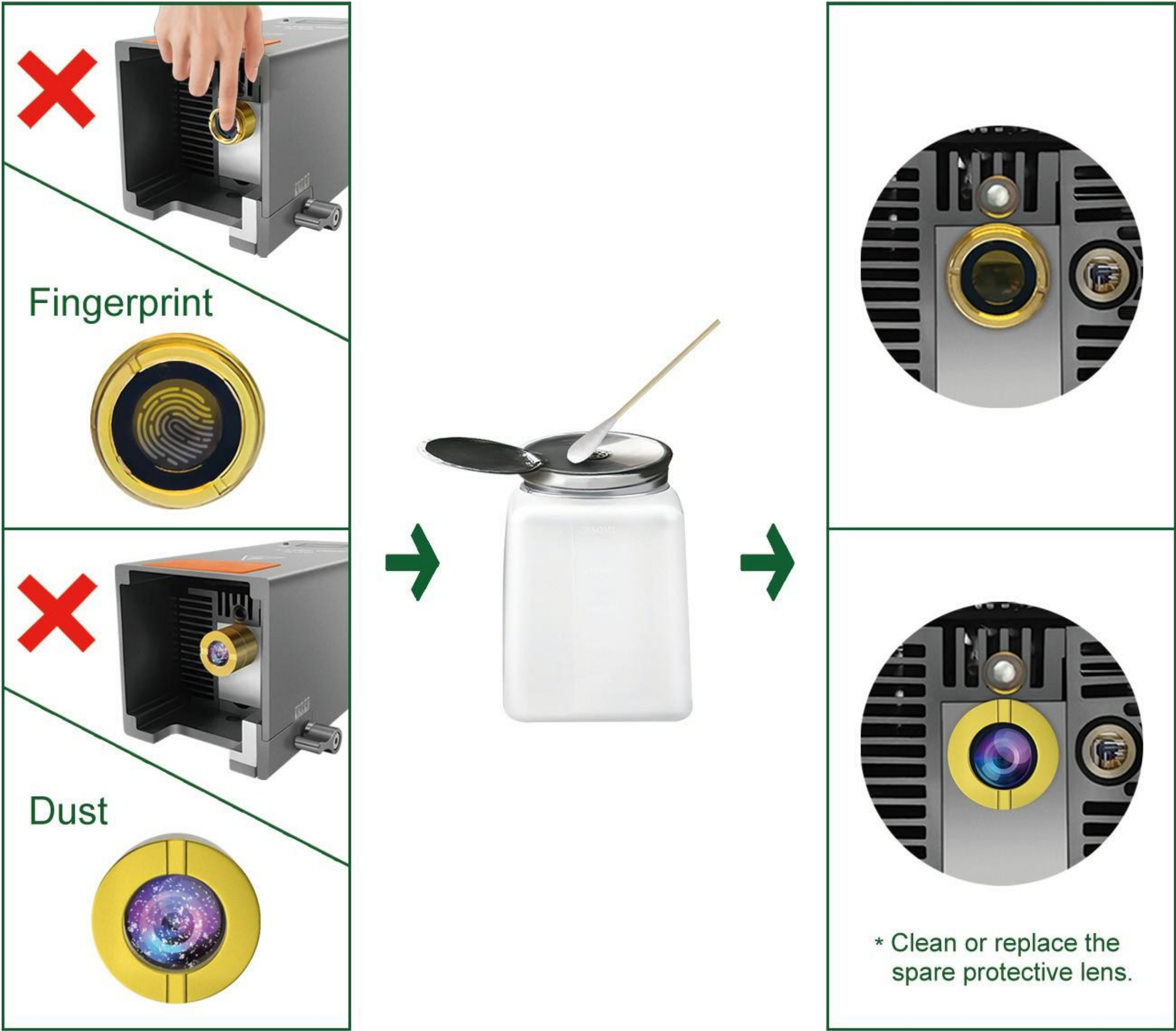
When you replace the air nozzle, please ensure that your operation will not pollute the lens. Finger prints or dust on the lens will weaken the output power of the laser module, or even damage the lens.



When you find the cutting ability of laser module decreases, the lens might be not clean. Please use a clean alcohol swab to clean it according to the following figure.

 **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.



\* For more information about maintenance, please contact us at [lasertree@micost-optotech.com](mailto:lasertree@micost-optotech.com).





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