LASER TREE

K10

USER MANUAL

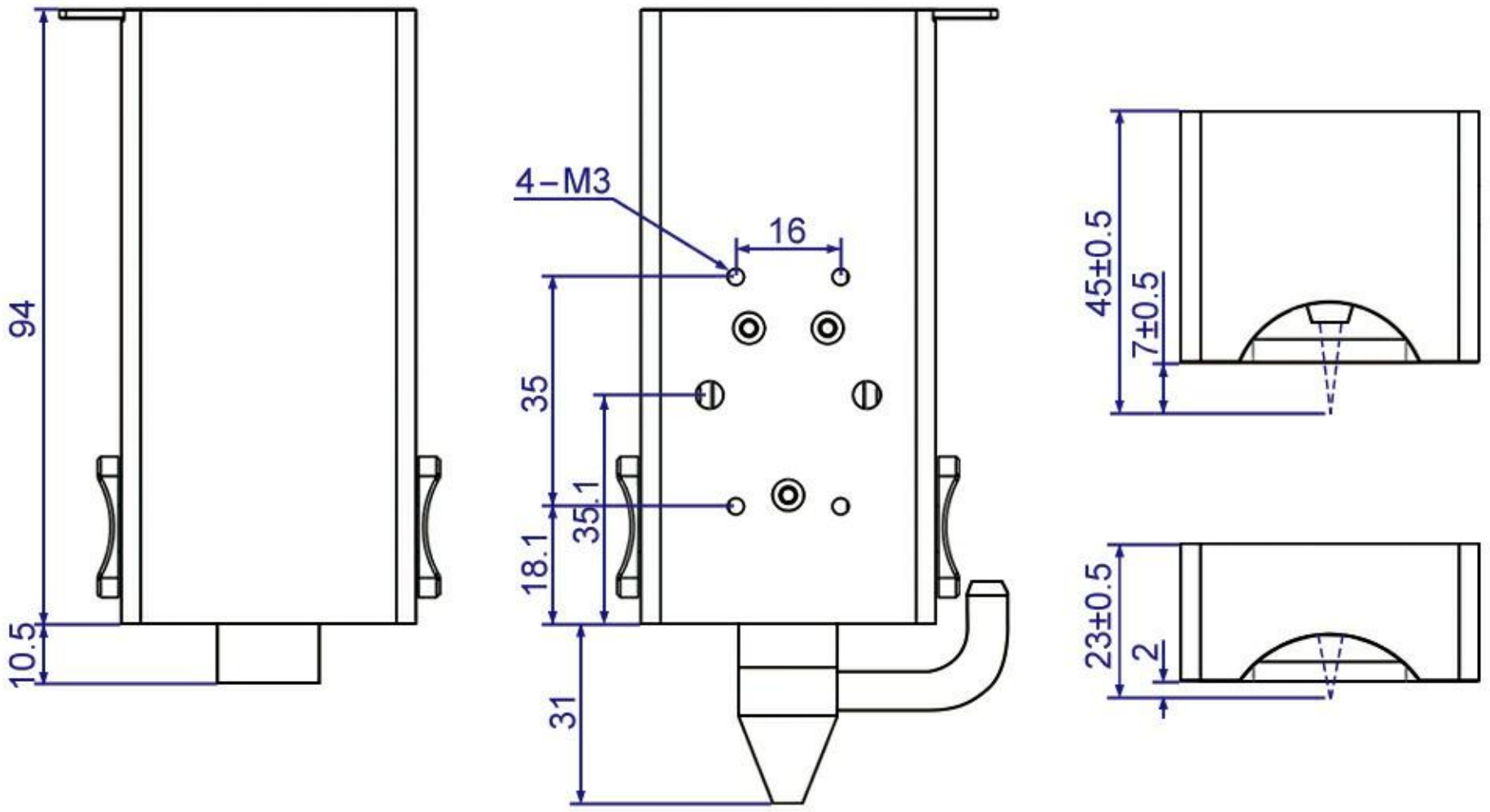
CONTENT

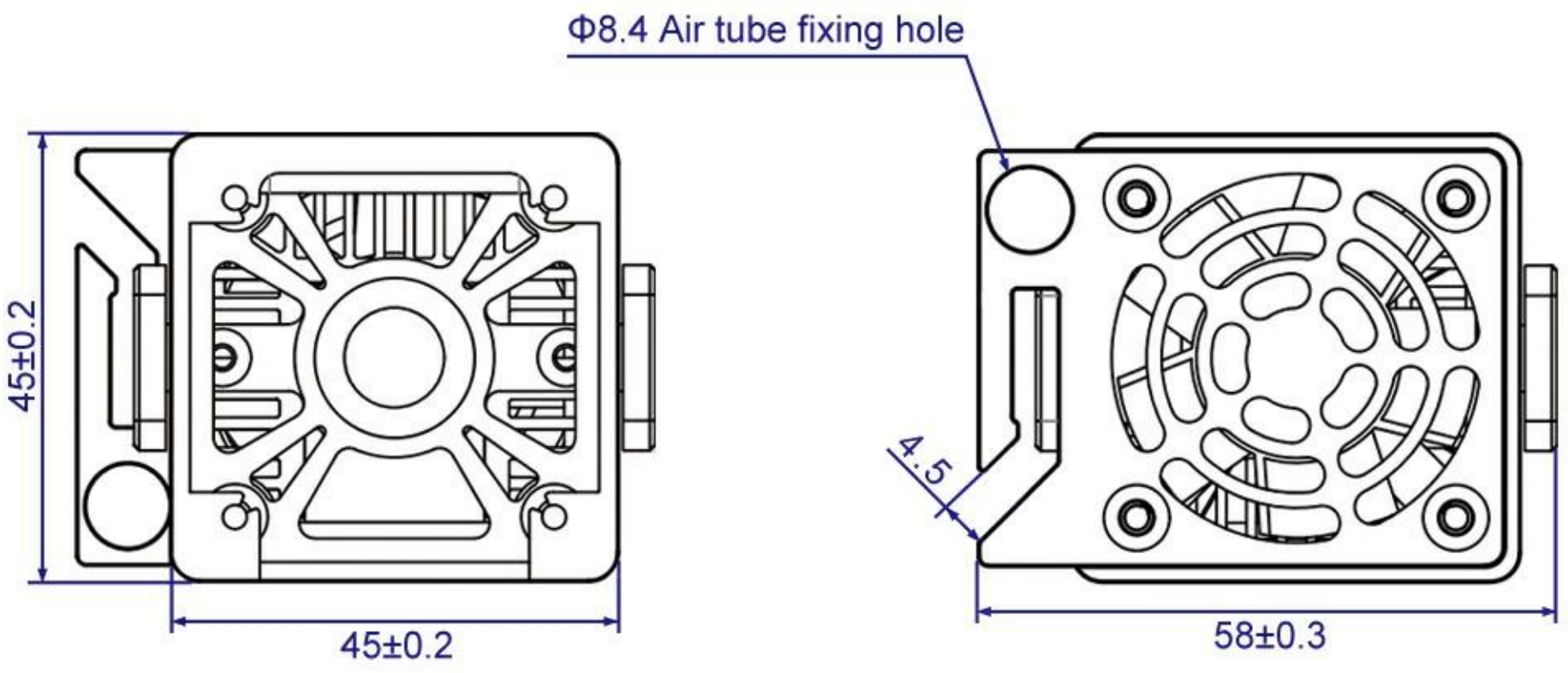
1. PRODUCT INTRODUCTION

Parameters

Optical power:	12W
Input:	• 12V3A • 24V1.5A
Wavelength:	450nm(±10nm)
Focus length:	45mm
Power adjustable:	TTL/PWM
PWM modulation:	0/3-12V, 0-5Khz
Air assistance:	External airway
Fan speed:	10000rpm
Operating temperature:	0-60°C
Interface:	XH2.54-3PIN
Material:	Aluminum & Copper
Module weight:	375g
Application:	Engraving & Cutting

Outline Dimension (Unit: mm)





Packing List

3 Pin input cable

Focus fixing plate*3

Laser module

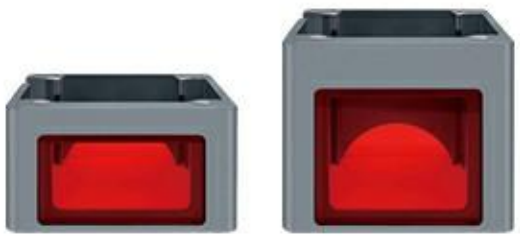
Spare protective lens

Driver adapter

Sliding plate

Φ8*5mm
Air tube

1.5mm# L wrench



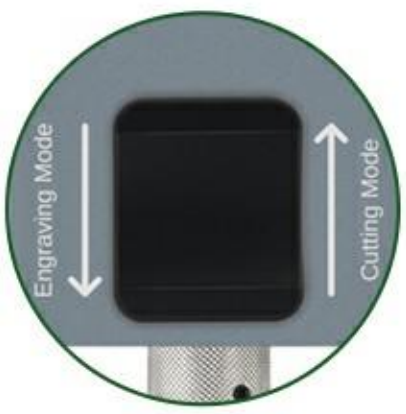
Magnetic
protection cover

2. PRODUCT DESCRIPTION

Overview

Protective baffle

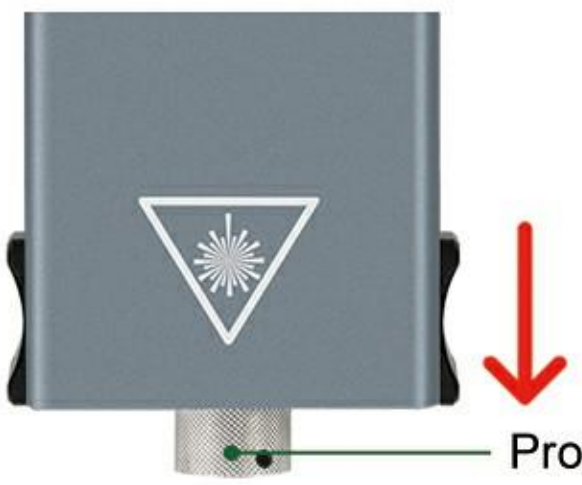
Input Port



Beam Focus Slider

Flexible switching of focus modes for engraving and cutting application scenarios, perfectly balancing the requirements for Rayleigh length and focus beam size in different scenarios, thereby achieving excellent cutting and great engraving effects.

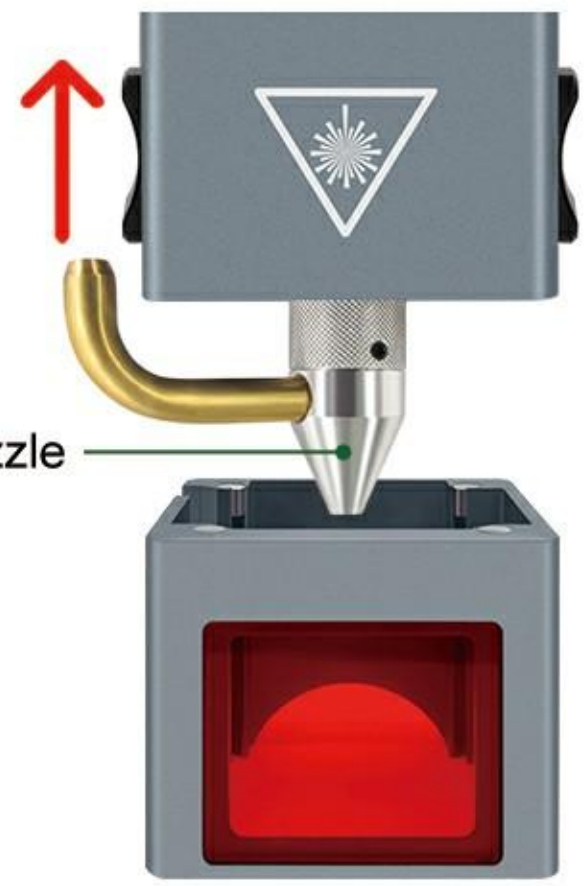
Engraving Mode



Protective lens

Engraving mode magnetic laser protective cover

Cutting Mode

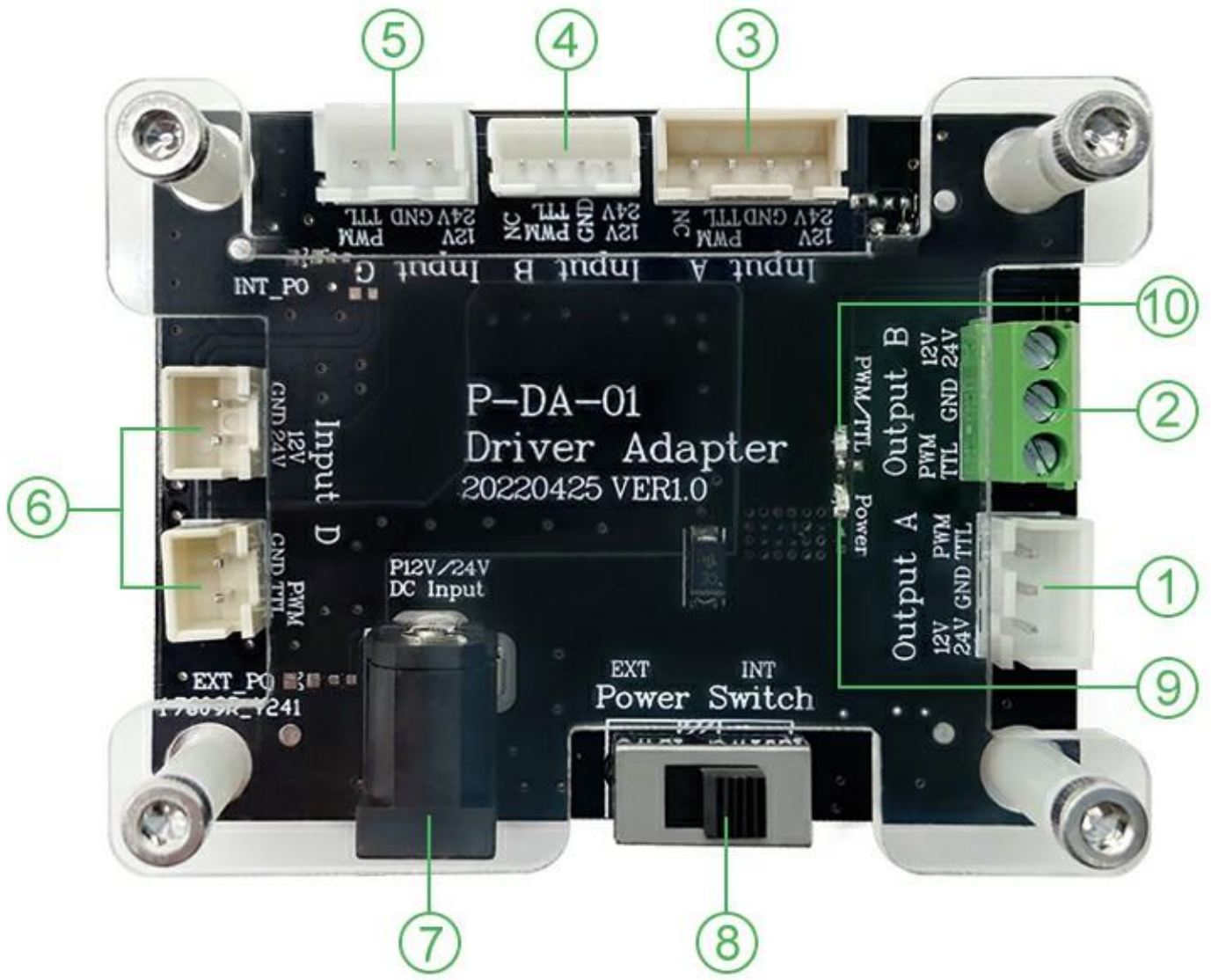


Air nozzle

Citting mode magnetic laser protective cover

Driver Adapter

Model: P-DA-01

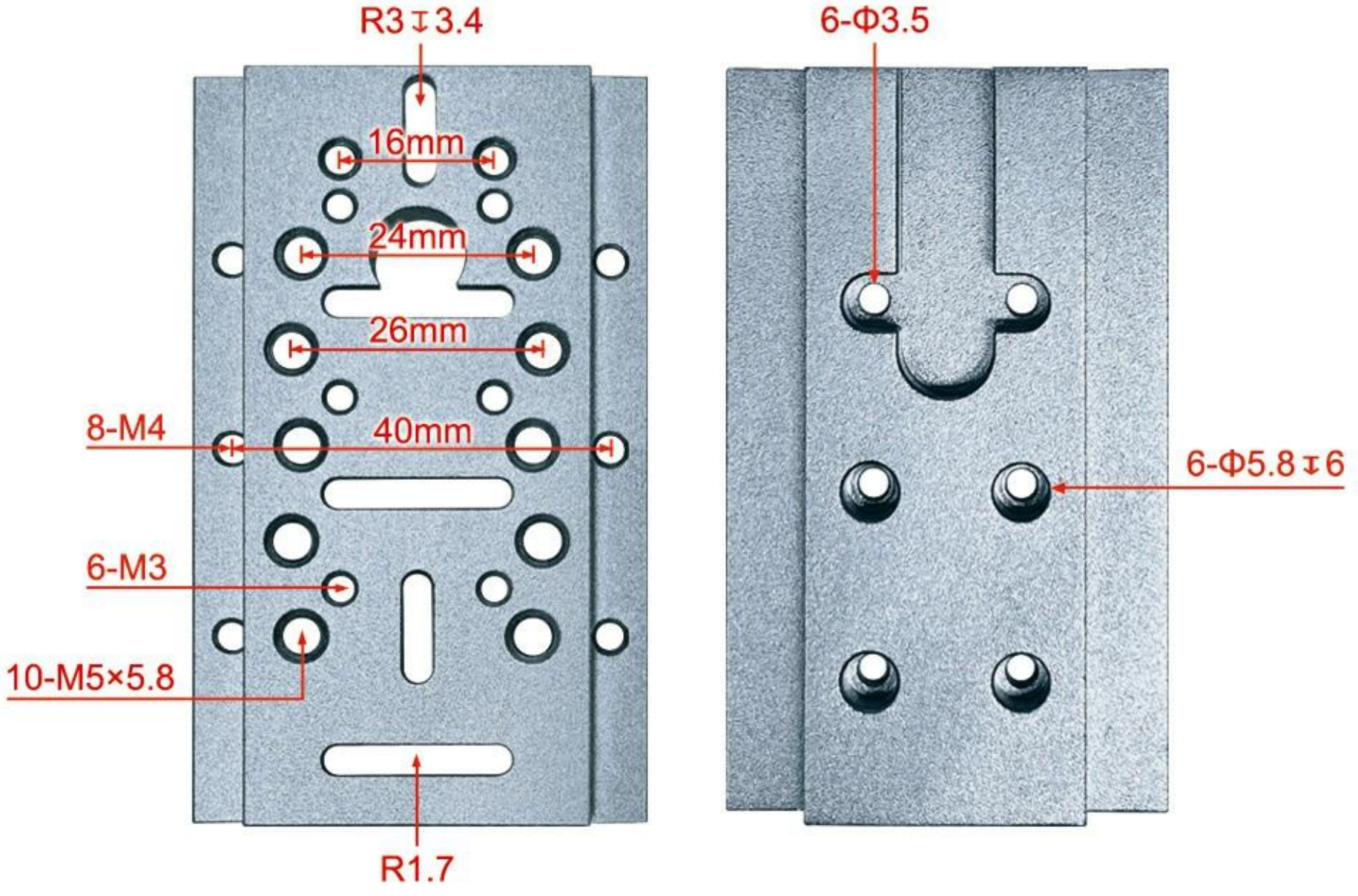


① Output A: 3PIN connector	② Output B: 3PIN connector
③ Input A: 4PIN connector	④ Input B: 4PIN connector
⑤ Input C: 3PIN connector	⑥ Input D: 2PIN connector
⑦ DC Input: 12V or 24V power adapter	
⑧ Power Switch: • EXT→External power supply • INT→Internal power supply	
⑨ Power indicator: It is red when the power cable is connected correctly.	
⑩ TTL/PWM indicator: It is green when the TTL/PWM cable is connected correctly.	

Sliding Plate

Multiple holes bring your widely installation compatibility.

Outline dimension (Unit: mm)



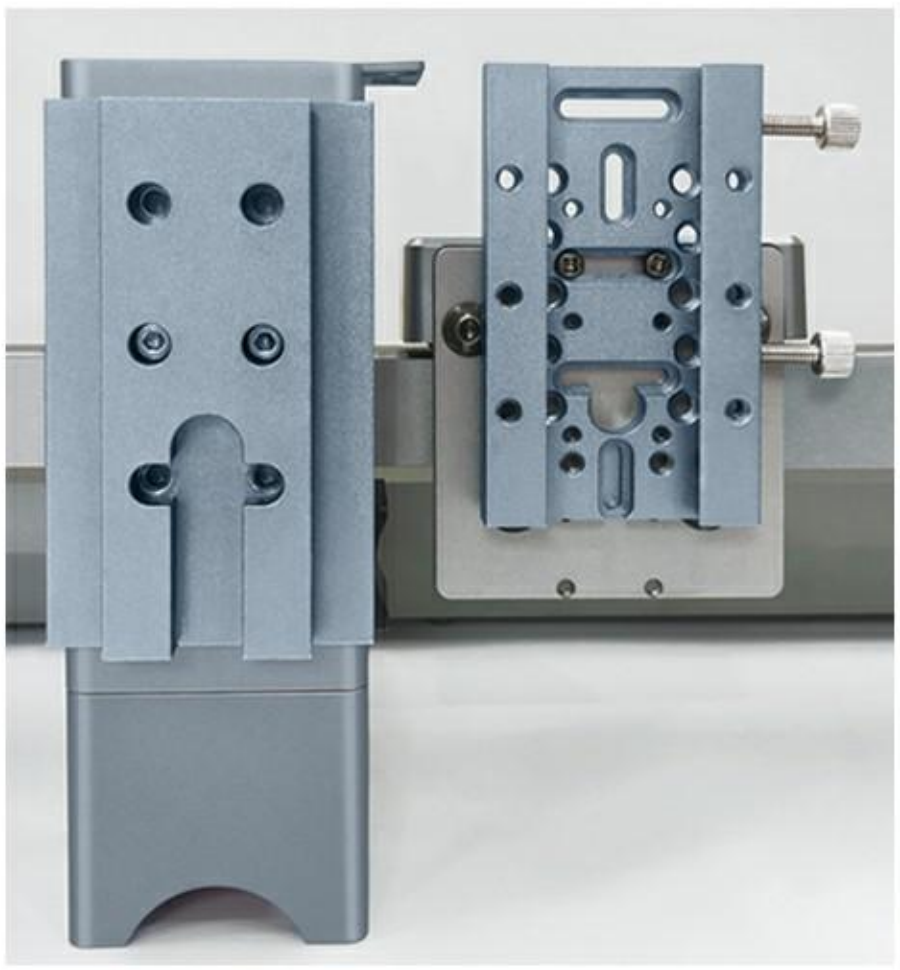
Accessories for sliding plate

M3x6 Fasten screw*4

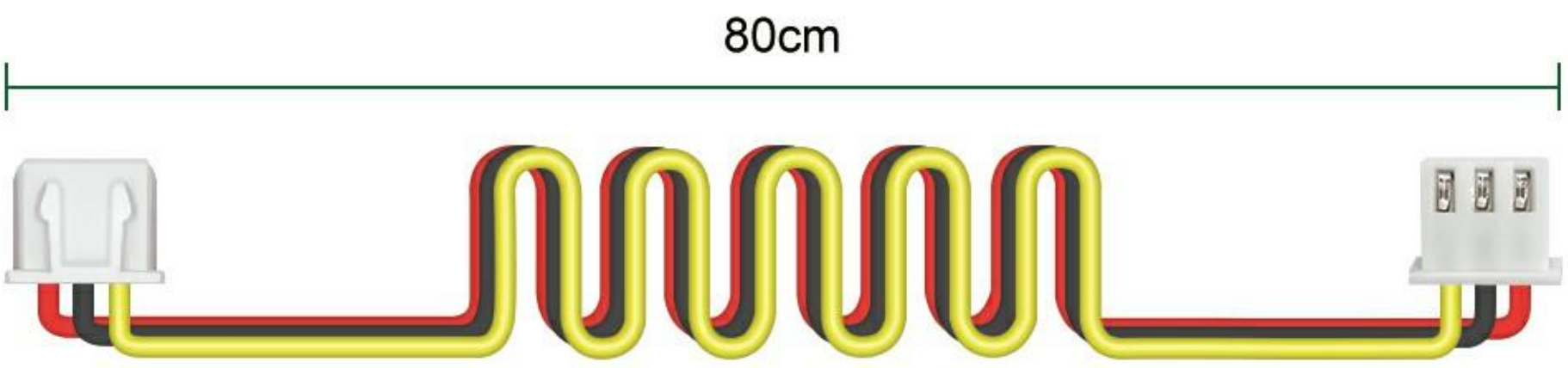
M4x20 Fasten screw*2

2.5mm L-wrench

Installation for sliding plate



Cable PIN Definition



Yellow wire: PWM

Black wire: GND

Red wire: Power (+12V/24V)

3. CONNECTION DESCRIPTION

Please check whether the laser module is compatible with your engraving machine before connection.

- Check the voltage parameter of your engraving machine.
- Check the PWM,GND and VCC port of the main control board on your engraving machine.

3.1.Connection Method 1: Plug and Play.

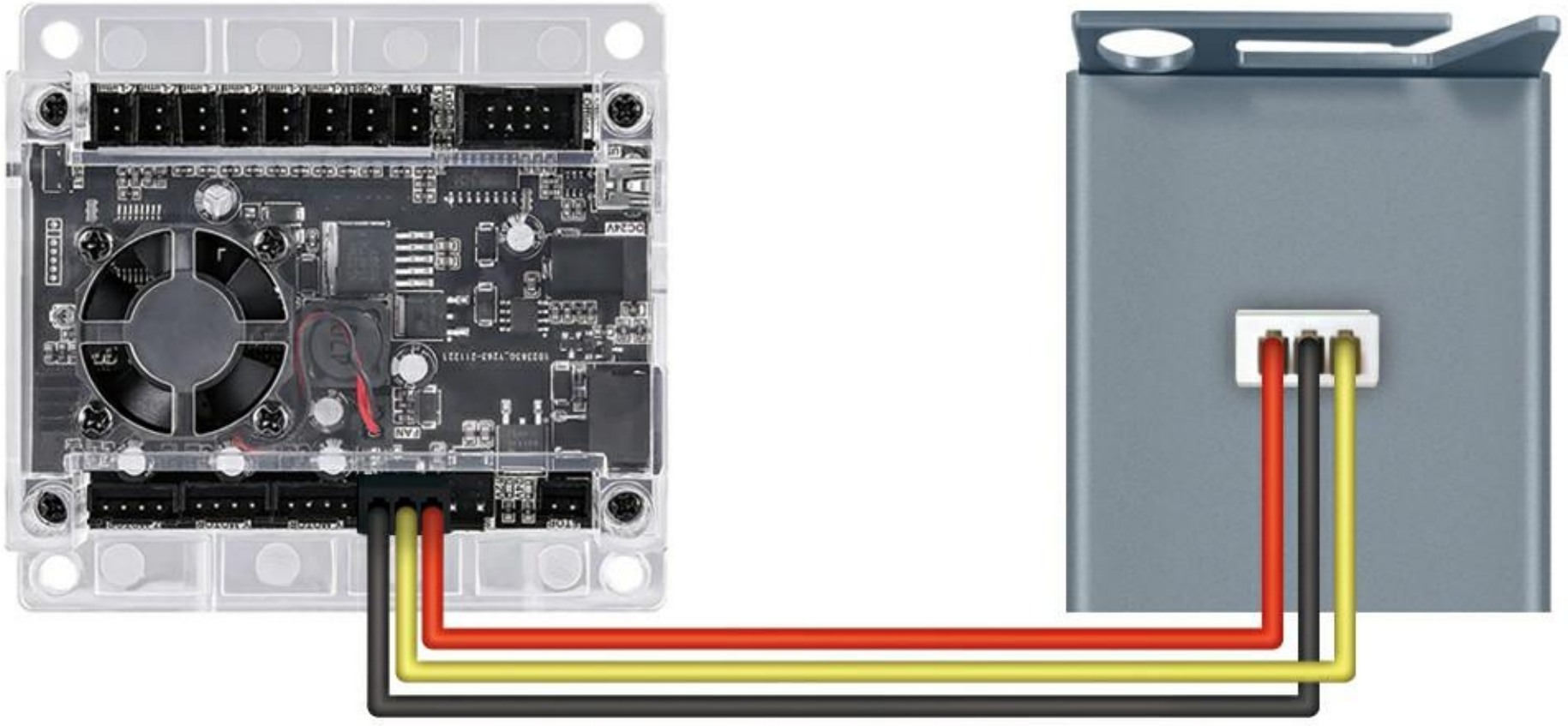
When the voltage and port of the engraving machine and the laser module both match, please check the pin definition and make connect.

	Laser Module	Laser machine main board	Solutions
Voltage	12V	12V	Plug and play or change the wire sequence
	24V	24V	
Pin Definitions	3Pin port PWM/GND/VCC	3Pin port PWM/GND/VCC	

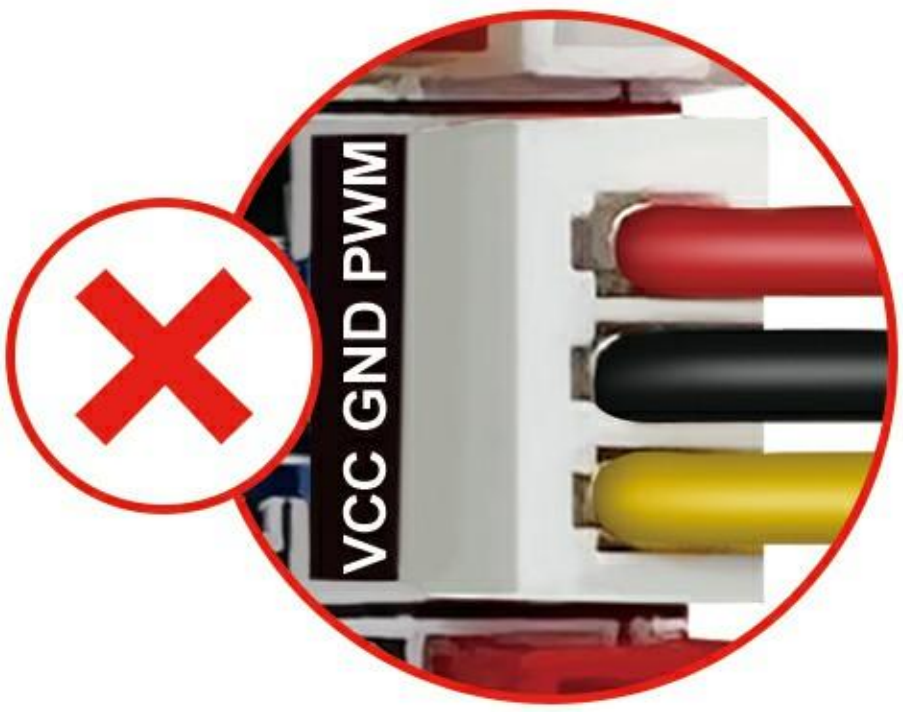
Situation 1: The definition of connector on the engraving machine main board is pin-to-pin. Please connect the laser module to the main board of your engraving machine directly.

Engraving machine main board

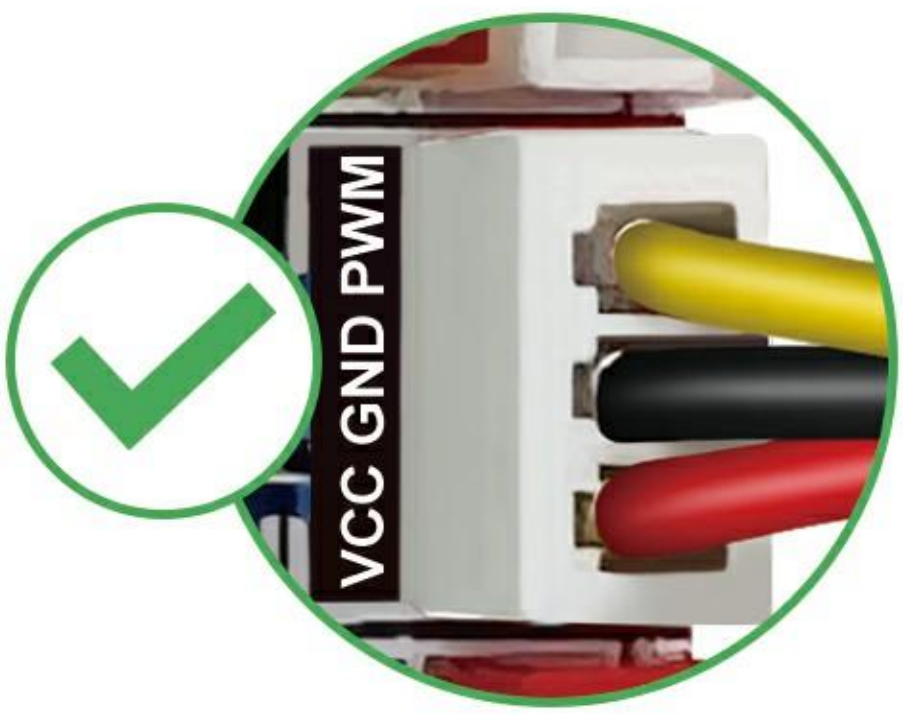
Laser module



Situation 2: The definition of connector on the engraving machine main board is not pin-to-pin. Please rearrange the wire sequence of the cable to make each wire is well matched with the pin definition on the engraving machine main board.



Red wire and yellow wire connection error



Red wire and yellow wire connection correctly

3.2.Connection method 2: Use Driver Adapter(P-DA-01).

When the voltage and port of the engraving machine do not match the laser module, please make the connection as follows.

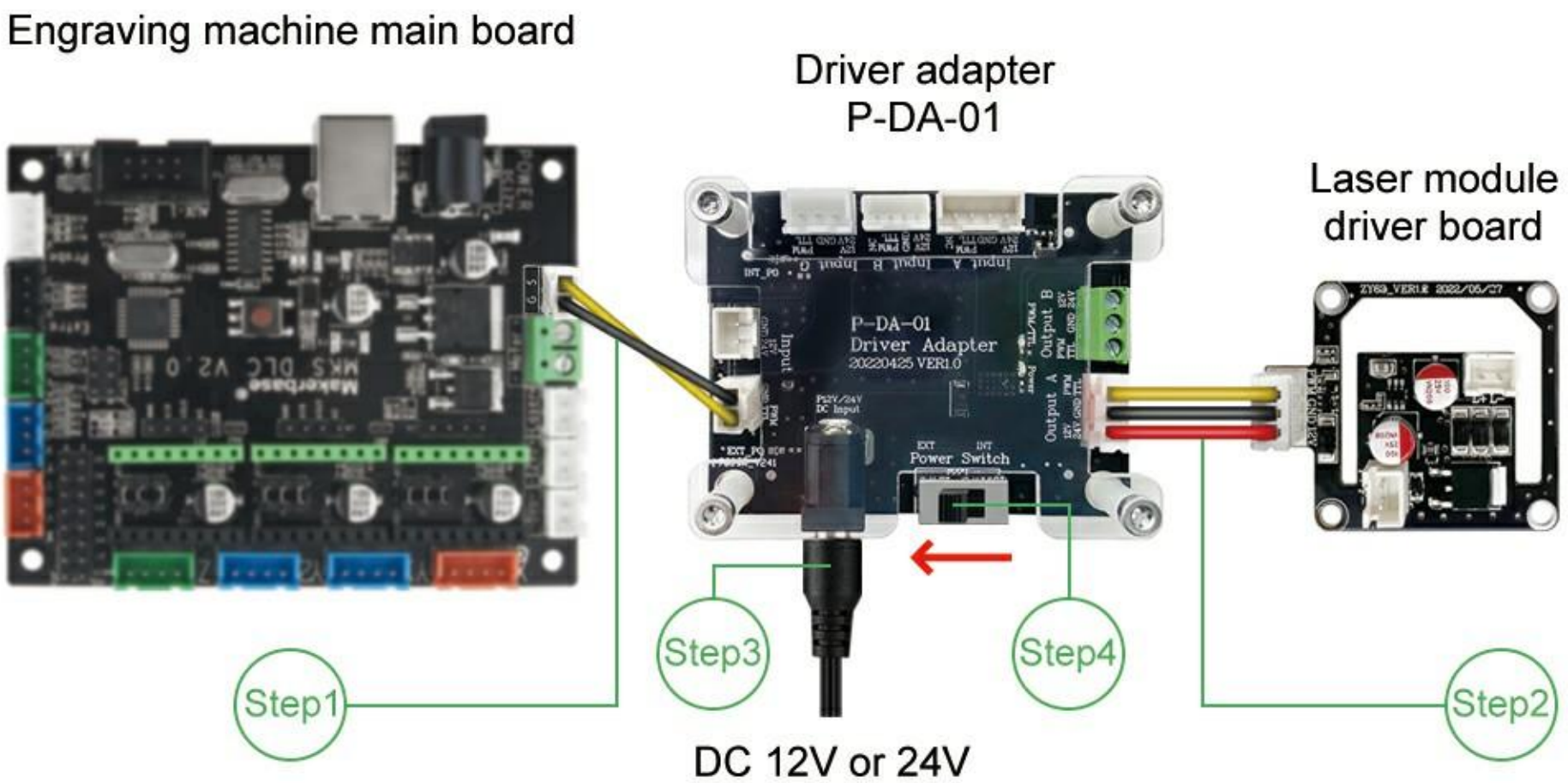
	Laser Module	Laser machine main board	Solutions
Voltage	12V	24V	Driver adapter and 12V External power supply
	24V	12V	Driver adapter and 24V External power supply
Pin Definitions	3Pin port PWM/GND/VCC	2Pin port	Driver adapter and 12V or 24V External power supply
		Other pins	

Step1 Connect the cable of your engraving machine to the corresponding input connector on driver adapter.

Step2 Connect the cable of the laser module to the Output A connector on driver adapter.

Step3 Connect the corresponding power adapter to the DC input connector on driver adapter.

Step4 Push the switch to “EXT” position and the power is provided by external power adapter.

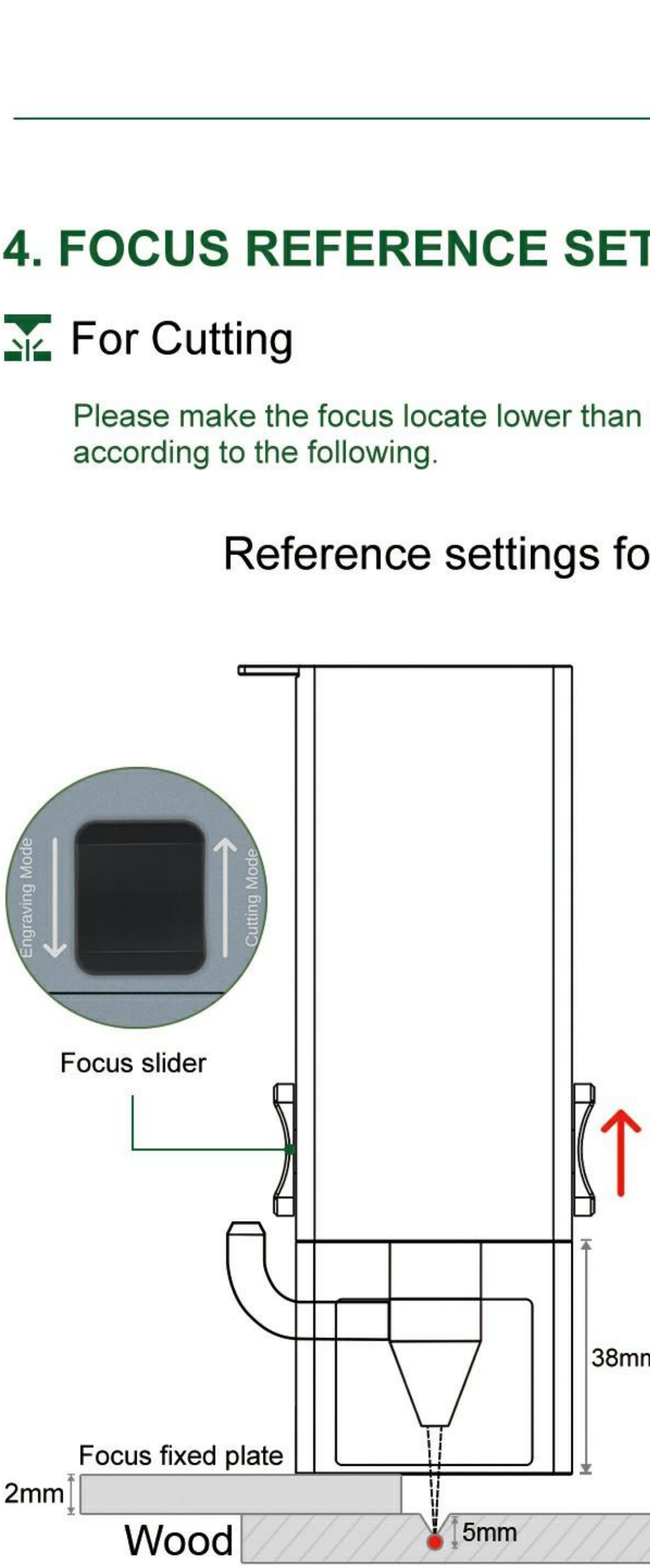


4. FOCUS REFERENCE SETTINGS

For Cutting

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

Reference settings for cutting



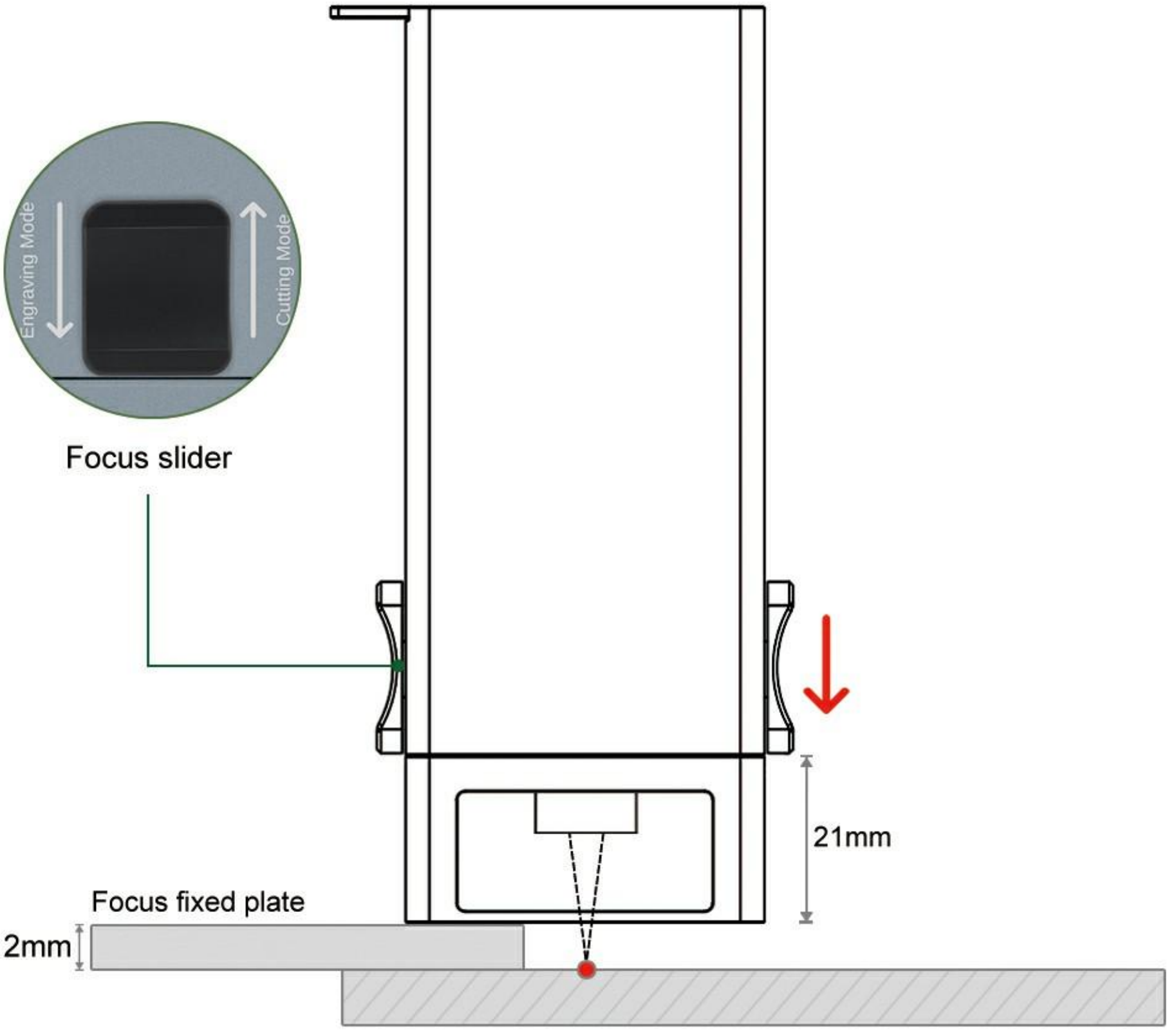
With magnetic cove	
Focus fixing plate using reference	
Material thickness	Plate thickness
<5mm	7mm
5mm	5mm
8mm	3mm
10mm	2mm
12mm	1mm
15mm	1mm
20mm	1mm
Without magnetic cove	
25mm	2mm
⩾30mm	1mm

For example, if you want to cut 10mm plywood, please adjust the cutting mode and remove the magnetic cover, the focus fixed plate should be 2mm.

For Engraving

Please make the focus locate on the engraving material surface.

Reference settings for engraving



For example, if you want to engrave, please adjust the engraving mode, the focus fixed plate should be 2mm.

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 decreases, 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.

Fingerprint

Dust

Alcohol swab

* Clean or replace the spare protective lens.

LASER TREE

Enjoy pleasure of DIY