



GT Series

Fiber Laser Marking Machine

User Manual



Read Carefully before Use
Keep for Future Reference



**Industrial Grade Answers,
Zero Thermal Compromise.**

Zero Heat Drift, Pure Titan Power.

For helpful tips and instructional videos, visit our Help Center or join our official laser group!

If you encounter any issues with your engraver, please contact us. Our support team will respond promptly to resolve your concerns.



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User Manual

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1 Safety Information

1.1 Disclaimer

Read this disclaimer completely and carefully before proceeding with the rest of the manual content.

1. As-Is

- This Monport product is sold 'as is' and without any express or implied warranties, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

2. Product Modifications

- Any modifications or alterations to Monport products void any warranties and may result in damage or injury. Monport shall not be liable for any damages resulting from such modifications or alterations.

3. Compliance with Laws

- Customers shall be liable for ensuring that the use of Monport products complies with all applicable laws and regulations in their respective jurisdictions. Monport assumes no responsibility for any violations of laws or regulations resulting from the use of Monport products.

4. Correct Use

- Always use Monport products only as directed in the accompanying manuals. Failure to follow instructions may result in injury or damage. Always ensure the assembly, installation, operation, maintenance, or repair of Monport products is carried out by a competent person. Always make maintenance regularly throughout Monport products' lifecycles; you have the liability to keep the products operating as intended. Always wear appropriate protective gear.

5. Third-Party Products

- Monport shall not be liable for any damages or losses resulting from the use of third-party products in conjunction with Monport products. Customers shall refer to the third-party's guidelines or/and warranties (if any) for any third-party products used.

6. Limitation of Liability

- Monport shall not be liable for any direct, indirect, punitive, incidental, special, or consequential damages to property or life, whatsoever arising out of or connected with the use or misuse of Monport products. In no event shall Monport's liability exceed the value of the products sold.

This disclaimer states the entire obligation of Monport with respect to Monport products. If any part of this disclaimer is determined to be void, invalid, unenforceable, or illegal, including but not limited to the warranty disclaimers, liability disclaimers, and liability limitations set forth above, the invalid or unenforceable provision will be deemed superseded by a valid and enforceable provision that most closely matches the intent of the original provision and the remainder of the agreement shall remain in full force and effect.

1.2 Symbol Guide

The following symbols are used on this machine's labeling or in this manual:



These items present a risk of serious property damage or personal injury.



These items address similarly serious concerns about the laser beam.



These items address similarly serious concerns about electrical components.



These items address similarly serious concerns about fire hazards.



These items address pinching and crushing hazards.



Protective eyewear should be worn by anyone around this machine during operation.



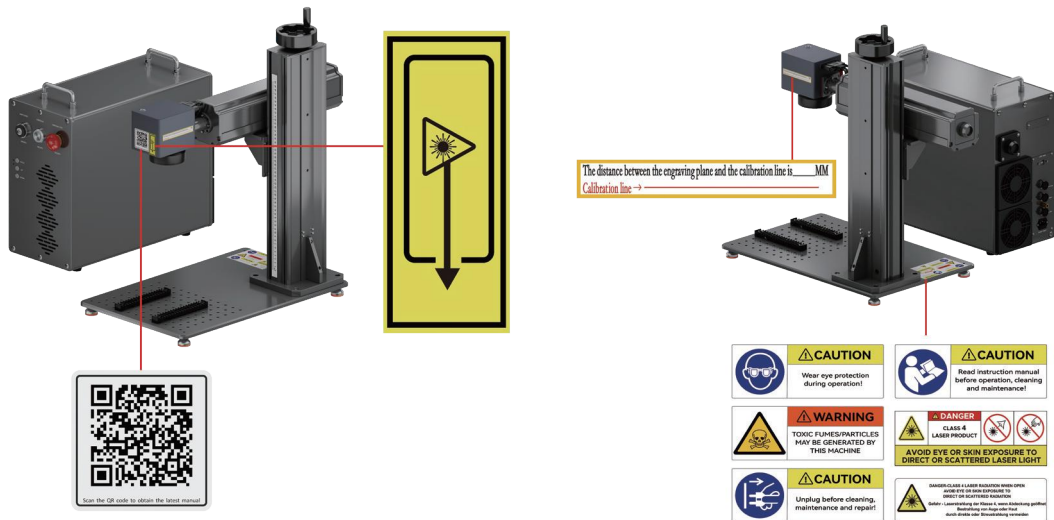
This product is sold in conformity with applicable EU regulations.



This product contains electrical components that should not be disposed of with regular garbage.

1.3 General Safety

Your engraver should come with instruction labels in the following locations.



If any of these labels is missing, illegible, or damaged, it must be replaced.

Use this laser marking device only in accordance with all applicable local and national laws and regulations.

Use this device only in accordance with this instruction manual and the manual for the engraving software included with it. Only allow this device to be installed, operated, maintained, repaired, etc. by others who have also read and understood both manuals. Ensure that this manual and the software manual are both included with this device if it is ever given or sold to a third party.

DO NOT leave this device unattended during operation. Observe the device throughout operation. If anything seems to be operating strangely, immediately cut off **ALL** power to the machine and contact either our customer service or your dedicated repair service. Similarly, ensure the device is **FULLY** turned off in the correct order after each use.



DO NOT allow minors, untrained personnel, or personnel suffering from physical or mental impairment that would affect their ability to follow this manual and the software manual to install, operate, maintain, or repair this device.

Any untrained personnel who might be near the device while it is in operation **MUST** be informed that it is dangerous and fully instructed on how to avoid injury during its use.

Always keep a fire extinguisher, water hose, or other flame-retardant system nearby in case of accidents. Ensure that the local fire department's phone number is clearly displayed nearby. In the case of a fire, cut electrical power before dousing the flame. Familiarize yourself with the correct range for your extinguisher before use. Take care not to use your extinguisher too close to the flame, as its high pressure can produce blowback.

1.4 Laser Safety Instructions

This machine complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3, as described in Laser Notice No. 56, dated May 8, 2019.

When used in accordance with these instructions, it is a **CLASS 4** laser product. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. Used without care, it can also cause serious property damage and personal injury including but not limited to the following:

- The laser will easily burn nearby combustible materials.
- Some working materials may produce radiation or harmful gasses during processing.
- Direct exposure to the laser will cause bodily harm including serious burns and irreparable eye damage.



As such,

- **NEVER** interfere with the laser beam.
- **DO NOT** place any part of your body under the laser lens during operation. Take measures to protect yourself from potentially reflected laser beams including the use of screens or personal protective equipment.
- **NEVER** attempt to view the laser directly without protective eyewear. Always wear safety goggles or glasses designed to filter the specific wavelength of your engraver's laser with an optical density (OD) of 5+. As even seemingly matte materials can produce harmful reflected beams, care should be taken to keep anyone without protective eyewear from observing the machine during operation. **EVEN WITH** protective eyewear, do not stare or allow others to stare continuously at the laser beam during operation.
- **DO NOT** leave potentially combustible, flammable, explosive, or corrosive materials nearby where they could be exposed to the direct or reflected laser beam.
- **DO NOT** use or leave sensitive EMI equipment nearby. Ensure the area around the laser is free of strong electromagnetic interference during any use.
- **ONLY** use this machine as described in the **Material Safety** section of this manual. The laser settings and engraving process must be properly adjusted for specific materials. Ensure the area is kept free of airborne pollutants, as these might pose a similar risk of reflection, combustion, etc.

- **NEVER** use this marking machine with the fiber source's housing open, as the closed laser light path is necessary to prevent laser radiation leakage.
- **DO NOT** modify or disassemble the laser and do not use the laser if it has been modified or disassembled by anyone except trained and skilled professionals. Dangerous radiation exposure and other injury may result from the use of adjusted, modified, or otherwise incompatible equipment.

1.5 Electrical Safety Instructions

- **ONLY** use this device with a compatible and stable power supply with less than 5% fluctuation in its voltage.
- **DO NOT** connect other devices to the same fuse, as the laser system will require its full amperage. Do not use with standard extension cords or power strips. Use only surge protectors rated over 2000J.
- **ONLY** turn on the power to this device when it is well grounded, either via a firm connection to a 3-prong outlet or via a dedicated ground cable firmly connected to the proper slot on the back of the main tower. Do not use with an ungrounded 3-to-2 prong adapter. The device's grounding should be checked regularly for any damage to the line or loose connections.
- Turn the device on and off using its key and power buttons in the correct order. The mainboard, galvanometer, and laser have separate power supplies that are grounded in order. Activating everything at once, too quickly, or in the wrong order may send electrical current to an ungrounded component, causing short circuits and other electrical hazards.
- **ONLY** use this device with one hand at a time. The laser is powered by an extremely high voltage connection and placing two hands on the machine at one time during operation has the potential to create a closed circuit with the human body, resulting in electrical shock.
- The area around this laser marking device should be kept dry, well ventilated, and environmentally controlled to keep the ambient temperature between 40 °F – 95 °F (5 °C – 35 °C). The ambient humidity should not exceed 70%.
- Adjustment, maintenance, and repair of the electrical components of this device must be done **ONLY** by trained and skilled professionals to avoid fires and other malfunctions, including potential radiation exposure from damage to the laser components. Because specialized techniques are required for testing the electrical components of this marking system, it is recommended such testing only be done by the manufacturer, seller, or repair service.
- Unless otherwise specified, **ONLY** undertake adjustment, maintenance, and repair of the device when it is turned off and disconnected from its power supply.



1.6 Material Safety Instructions

- Users of this fiber marking machine are responsible for confirming that materials to be processed can withstand the heat of a class 4 laser and will not produce any emissions or byproducts either harmful to people nearby or in violation of any local or national laws or regulations. In particular, do not use this device to process polyvinyl chloride (PVC), teflon, or other halogen containing materials under any circumstances.
- Users of this fiber laser are responsible for ensuring that every person present during operation has sufficient PPE to avoid any injury from emissions or byproducts of the materials being processed. In addition to the protective laser eyewear discussed above, this may require goggles, masks or respirators, gloves, and other protective outer clothing.
- Users must exercise special caution when working with conductive materials as buildup of their dust and ambient particles may damage electrical components, cause short circuits, or produce other effects including reflected laser radiation.

This machine can be safely used with the following materials:

- | | | |
|--|------------|------------|
| • Aluminum | • Brass | • Carbide |
| • Gold | • Silver | • Steel |
| • Stone, including Granite, Marble, etc. | • Titanium | • Tungsten |

This machine **CANNOT** be used with the following materials or with any materials which include them:

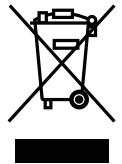
- Artificial Leather containing Hexavalent Chromium (Cr[VI]), due to its toxic fumes
- Astatine, due to its toxic fumes
- Beryllium Oxide, due to its toxic fumes
- Bromine, due to its toxic fumes
- Chlorine, including Polyvinyl Butyrate (PVB) and Polyvinyl Chloride (PVC, Vinyl, sintra, etc.), due to its toxic fumes

- Fluorine, including Polytetrafluoroethylenes (teflon, PTFE, etc.), due to its toxic fumes
- Iodine, due to its toxic fumes
- Paper and Paperboard, due to their high flammability when exposed to the concentrated laser
- Phenolic Resins, including various forms of Epoxy, due to their toxic fumes
- Wood, including MDF, Plywood, Balsa, Birch, Cherry, Oak, Poplar, etc., due to its high flammability

This machine can be used with some other metals, hard plastics, and other materials with some care. For other materials, if you are unsure about its safety or laserability with this device, seek out its material safety data sheet (MDS). Pay especial attention to information about safety, toxicity, corrosiveness, reflectivity, and reaction(s) to high heat. Alternatively, contact our support department for further guidance.

1.7 Disposal Safety Instructions

Electrical products should not be disposed of with household products. In the EU and UK, according to the European Directive 2012/19/EU for the disposal of electrical and electronic equipment and its implementation in national laws, used electrical products must be collected separately and disposed of at the collection points provided for this purpose. Locations in Australia, Canada, and the United States may have similar regulations. Contact your local authorities or dealer for advice.



2 Introduction

2.1 General Information

This manual is the designated user guide for the installation, setup, safe operation, and maintenance of your fiber laser marking machine. It is divided into several chapters covering general information, safety instructions, installation steps, operation instructions, maintenance instructions, and contact information.

All personnel involved in the installation, setup, operation, maintenance, and repair of this machine should read and understand this manual, particularly its safety instructions. Substandard performance and longevity, property damage, and personal injury may result from not knowing and following these instructions.

Your fiber laser marker works by emitting a powerful laser beam from its fiber laser source, sending that beam through a fiber optic cable, focusing its power through the galvanometer lens, and using this focused light to etch designs into certain substrates.

This fiber laser marking machine uses a nanoscale fiber laser source. Its single-mode output, good heat dissipation, high efficiency, and compact structure make it ideal for high-precision laser marking. With typical use, this device has an average lifespan around 100,000 working hours. However, constantly running your laser above 80% of its maximum rated power can significantly shorten its service life. It is recommended to use settings from 10% to 75% of the maximum rated power to enjoy optimal performance and longevity.

Note: This is a high-voltage device. As a safety precaution, only touch internal components with one hand at a time during operation.

The operating laser is invisible to the human eye. When the laser is in use, all personnel in or near the work area **MUST** wear appropriate protective eyewear to avoid potentially permanent injury. The exhaust system must comply with all applicable laws and regulations related to workplace and environmental air quality.

* Due to variations between production batches, the product's appearance may differ. This does not affect its functionality. Please refer to the actual product.

2.2 Designated Use

This machine is intended for engraving signs and logos on consumer products or applicable substrates. This laser can process a wide variety of metals including steel, aluminum, titanium, brass, copper, tungsten, carbide, and chrome. It can also be used with stone and some hard plastics such as acrylic (See [Material Safety Instructions](#) on Page 6 for further details). The use of this system for non-designated purposes or materials is not permitted.

2.3 Specifications

Table 1

Product		GT20	GT30	GT50
Voltage		North America (United States & Canada): 110–120V / 60Hz Europe, United Kingdom & Australia: 220–240V / 50Hz		
Overall Rated Power		400 W	400 W	400 W
Workbed Area		350*380 mm		
Max. Marking Speed		10000 mm/s (393.7 ips)		
Marking Accuracy		±0.01 mm		
Max. Marking Depth in a Single Pass on 304 Stainless Steel		0.0012 in. (0.03 mm)	0.002 in. (0.05 mm)	0.004 in. (0.1 mm)
Min. Line Width		0.0004 in. (0.01 mm)		
Field Lens	Processing Area	4.3 x 4.3 in. (110x110 mm)	5.9 x 5.9 in. (150x150 mm)	7.9 x 7.9 in. (200x200 mm)
Max Z.height (Field Lens to Workbench)		550 mm		
Beam Combiner Lens Size		ø20×2 mm		
Laser	Laser Type	Q-switched Fiber Laser		
	Laser Output Power	20 W	30 W	50 W
	Adjustable Power Range	10%–100%		

Table 1 continued

Product		GT20	GT30	GT50
Laser	Expected Service Life	100,000 hr.		
	Laser Wavelength	1064 nm		
	Modulation Frequency	29~60kHz	30~60kHz	20~80kHz
	Pulse Width	80~120 ns Unadjustable (Fixed pulse width)	80~120 ns Unadjustable (Fixed pulse width)	100~140 ns Unadjustable (Fixed pulse width)
	Operating Temperature Range	40~95 (°F) 5~35 (°C)		
	Max. Humidity	70%		
	Cooling Type	Air Cooling		
	Class	4		
Operating Software		BslAppSimple (Included) (Windows 7/8/10/11) Lightburn (Not included) (Windows 7/8/10/11, MacOS)		
Applicable Image Formats		Image files (*.bmp *.jpg *.jpeg *.png *.gif *.tif *.tiff *.tga *.webp) Vector files (*.ai *.pdf *.sc *.dxf *.gc *.gcode *.nc *.hpgl *.plt *.svg *.lbrn *.lbrn2 *.mage), etc.		
Product Dimensions	Mainframe Box Dimension	45*21*39.5 cm 17.7*8.3*15.6 inch		
	Main Tower Dimension	35*55*69.5 cm 13.8*21.7*27.4 inch		
Product Weight		33.5 kg (73.9 lb)	34 kg (75 lb)	35.5 kg (78.3 lb)

Table 2

Product		GT30 mopa	GT60 mopa	GT80 mopa	GT100 mopa	GT200 mopa
Voltage		North America (United States & Canada): 110–120V / 60Hz Europe, United Kingdom & Australia: 220–240V / 50Hz				
Overall Rated Power		400 W	600 W	800 W	800 W	1200 W
Workbed Area		350*380 mm				
Max. Marking Speed		10000 mm/s (393.7 ips)				22000 mm/s (866.1 ips)
Marking Accuracy		±0.01 mm				
Max. Marking Depth in a Single Pass on 304 Stainless Steel		0.002in. (0.05mm)	0.005in. (0.13mm)	0.006in. (0.15mm)	0.008in. (0.2mm)	0.012in. (0.3mm)
Min. Line Width		0.0004 in. (0.01 mm)				
Field Lens	Processing Area	6.9 x 6.9 in. (175x175 mm)			6.9 x 6.9 in. (175x175 mm) Quartz Field Lens	
Max Z.height (Field Lens to Workbench)		550 mm				
Beam Combiner Lens Size		ø20×2 mm			ø20×2 mm (Quartz)	
Laser	Laser Type	MOPA Fiber Laser				
	Laser Output Power	30 W	60 W	80 W	100 W	200 W
	Adjustable Power Range	10%–100%				

Table 2 continued

Product		GT30 mopa	GT60 mopa	GT80 mopa	GT100 mopa	GT200 mopa
Laser	Expected Service Life	100,000 hr				
	Laser Wavelength	1064 nm				
	Modulation Frequency	1~3000 kHz				
	Pulse Width	2~500 ns				
	Operating Temperature Range	40–95 (°F) 5–35 (°C)				
	Max. Humidity	70%				
	Cooling Type	Air Cooling				
	Class	4				
Operating		BslAppSimple (Included) (Windows 7/8/10/11) Lightburn (Not included) (Windows 7/8/10/11, MacOS)				
Applicable Image Formats		Image files (*.bmp *.jpg *.jpeg *.png *.gif *.tif *.tiff *.tga *.webp) Vector files (*.ai *.pdf *.sc *.dxf *.gc *.gcode *.nc *.hpgl *.plt *.svg *.lbrn *.lbrn2 *.mage), etc.				
Product Dimension	Mainframe Box Dimension	45*21*39.5 cm 17.7*8.3*15.6 inch				52*21* 51.5 cm 20.5*8.3* 20.3 inch
	Main Tower Dimension	35*55*69.5 cm (13.8*21.7*27.4 inch)				
Product Weight		34.5 kg (76.1 lb)	36 kg (79.4 lb)	36.5 kg (80.5 lb)	37.5 kg (82.7 lb)	53 kg (116.8 lb)

2.4 Package List



A



B



C



D



E



F



G



H



I



J



K



L



M



N



O



P



Q



R



S



T

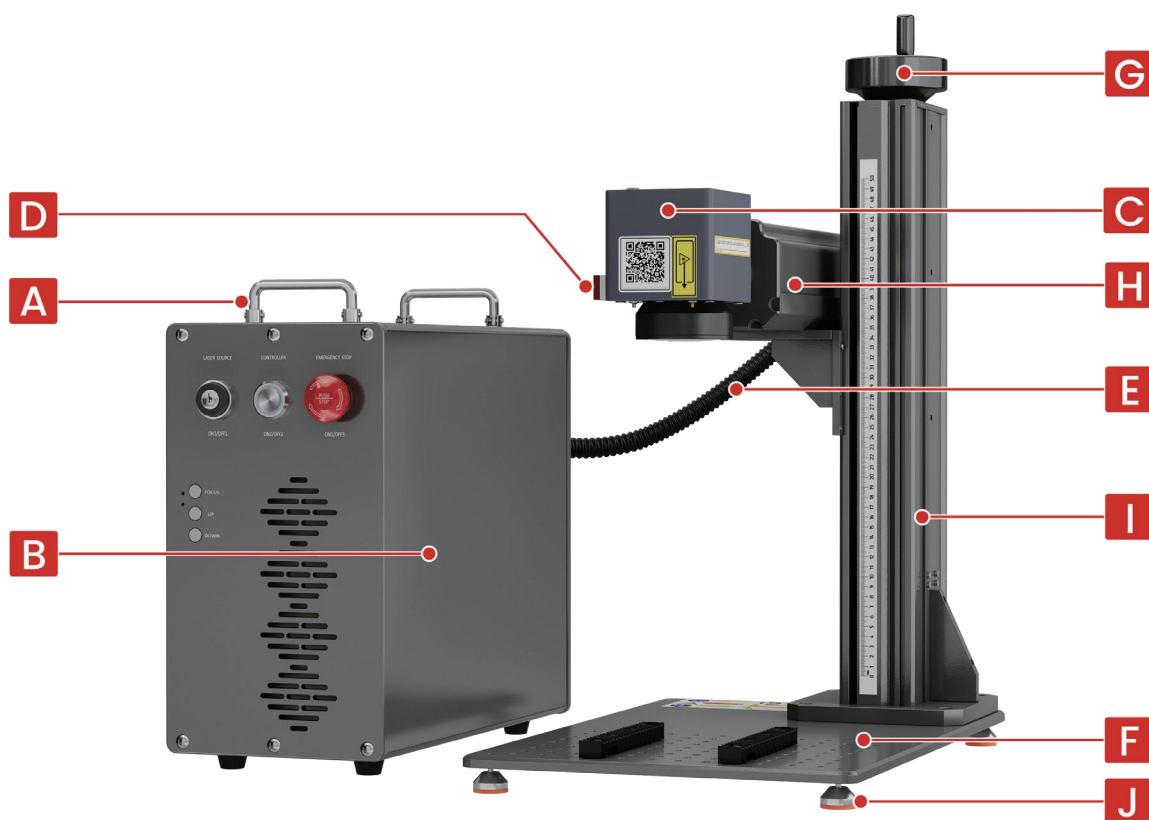


U

No.	Name	Qt.
A	Fiber Laser Engraver	1
B.	Power Cord (1.5 meters)	1
C	USB Cable (2 meters)	1
D	USB Flash Drive	1
E.	Laser Key	2
F	User Manual	1
G	Goggles (OD7+)	1
H	Wrench Set	1
I	Ruler (50cm)	1
J	Foot Pedal	1
K	Positioning Bars	2
L	Usb to TypeC Adapter	1
M	Height Fixator	1
N	Test Aluminum Sheets	10
O	Metal Pendan	4
P	Screws M8*12 (For Support Column)	4
Q	Screws M5*12 (For Laser Arm)	4
R	Screws M6*12 (For Positioning Bars)	4
S	Anti-Slip Feet Cup	4
T	Lens Cover	1
U	Lifting Motor Cable	1

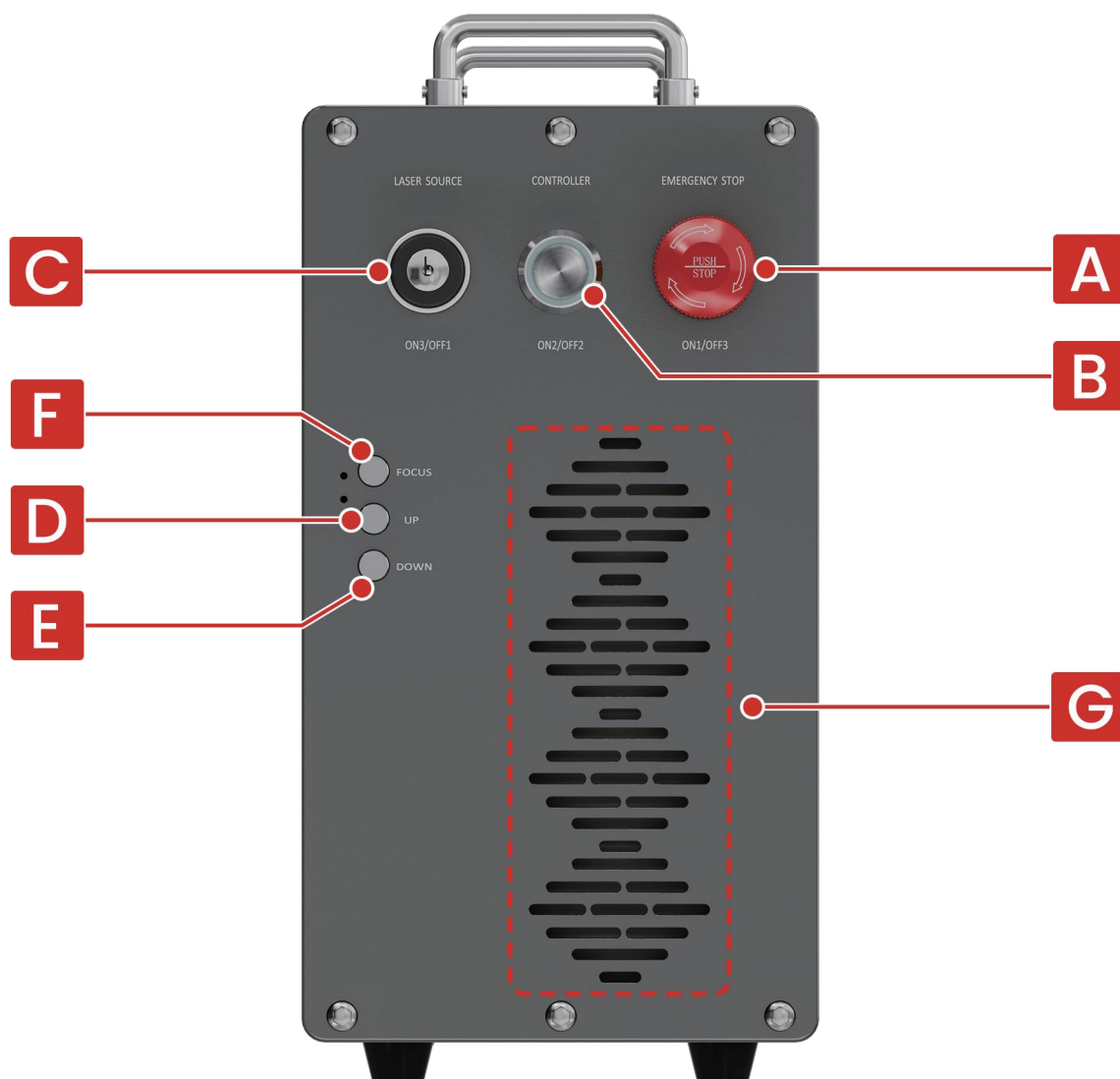
3 Components

3.1 Main Parts



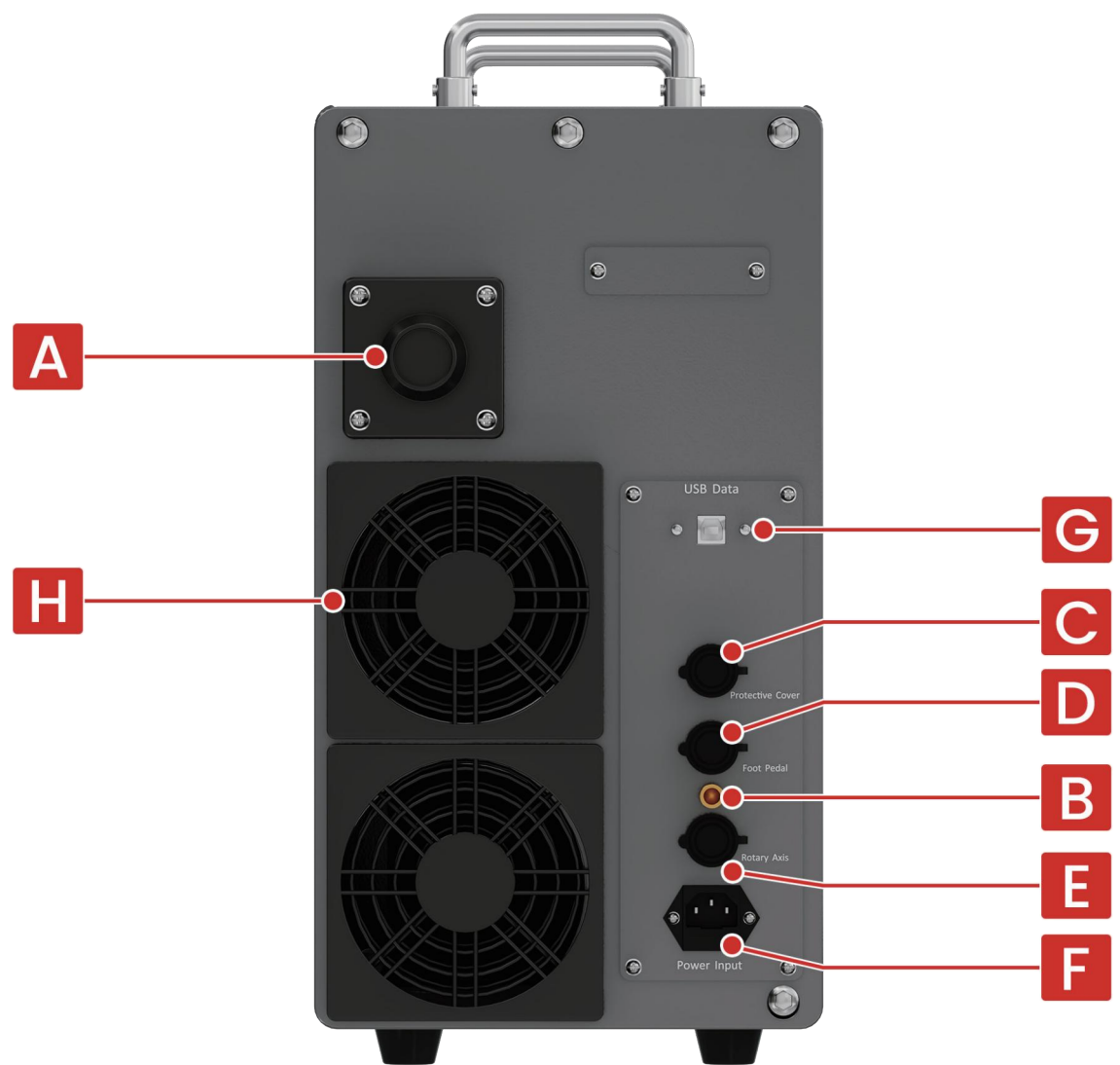
No.	Name	Description
A	Handles	Used for safely moving and repositioning the main tower only when the power is off. DO NOT move or adjust the tower during operation.
B	Main Tower	Houses the core components: the fiber laser source, motor drives, power supplies, and system connections.
C	Galvo Lens Head	The high-speed galvanometer scanning head uses internal motorized mirrors to direct and focus the laser beam onto the material for precise engraving.
D	Autofocus Sensor	Automatically measures the distance to the material surface for optimal focus. DO NOT press its buttons during normal operation to avoid damaging the sensor.
E	Laser Cable	A flexible conduit that transmits the laser beam from the source inside the main tower to the collimator in the laser arm.
F	Workbed	The platform that is used for holding the target material. It includes optional alignment bars to secure and position the material accurately.
G	Height Adjustment Knob	Manually adjusts the laser arm's height for focusing. While the automated system primarily performs focusing operations, the knob allows for manual fine-tuning for materials of different thicknesses.
H	Laser Arm	Holds and positions the Galvo Lens Head. It moves vertically along the support column to achieve the correct focal distance and contains the collimator, which aligns the laser beam after it passes through the laser cable.
I	Support Column	The vertical structural column that supports and guides the movement of the laser arm.
J	Anti-Slip Feet Cup	Prevents the workstation from sliding and keeps the work surface stable and level.

3.2 Control Panel



No.	Name	Description
A	Emergency Stop	Cuts all power to the entire machine in emergency situations. Rotate to unlock first during startup, and ensure it is pressed down (engaged) after shutdown.
B	Controller & Galvo	Controls power to the controller board and galvo system. Turn it on as the second step during startup, and turn it off as the second step during shutdown.
C	Laser Switch	Activates the fiber laser source. Always unlock it last when starting up and lock it first when shutting down.
D	UP	Raises the laser arm for focusing adjustments.
E	Down	Lowers the laser arm for focusing adjustments.
F	Focus	Activates the autofocus function. Only press this after the material is correctly positioned under the laser.
G	Air Inlet	Connects to rear cooling fans. Contains a filter to prevent dust intake.

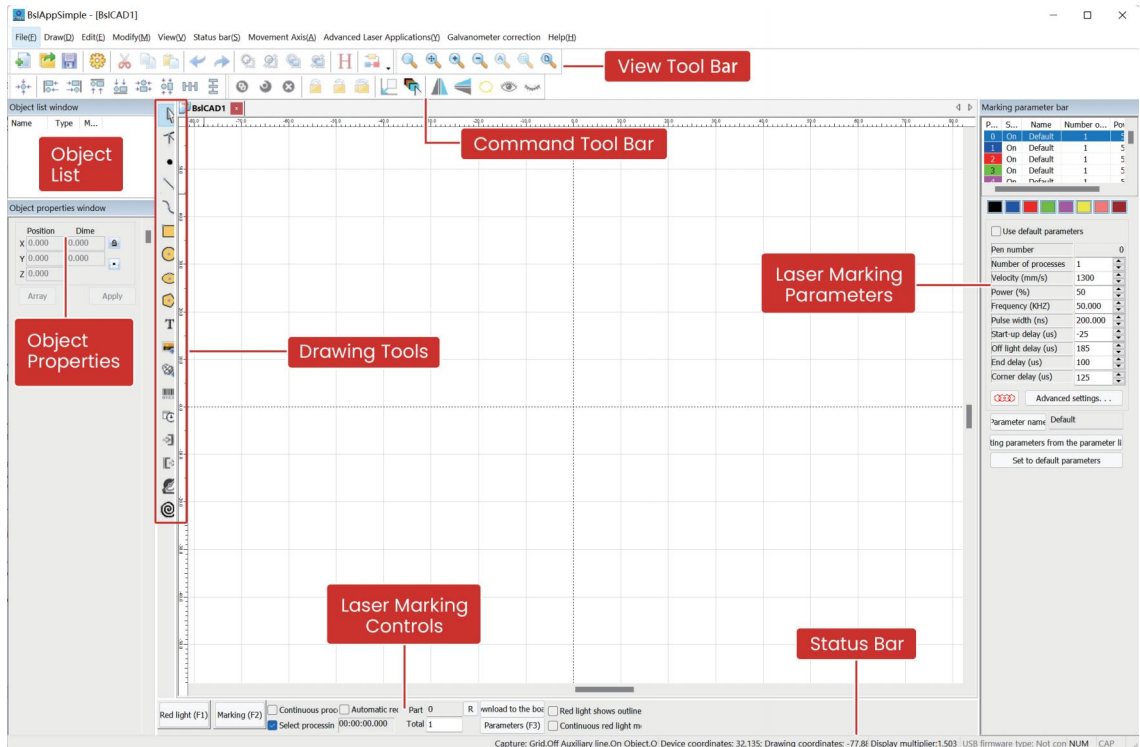
3.3 Control Panel



No.	Name	Description
A	Laser Cable	Transmits the laser beam from the laser source to the collimator in the laser arm.
B	Grounding Cable Input	Provides a primary grounding point when a properly grounded 3-prong outlet is unavailable. It can also accommodate an optional secondary grounding cable to enhance safety.
C	Protective Cover	A 2-pin interlock input for compatible safety enclosures (sold separately). If the enclosure door is opened, this signal will immediately cut power to the laser to prevent injury from reflected beams.
D	Foot Pedal	A 2-pin input for connecting the provided foot pedal. The foot pedal acts as a remote trigger for manual laser firing.
E	Rotary Axis	A 4-pin port for compatible rotary axis accessories (sold separately). Connect the rotary axis, position the workpiece under the Galvo Lens Head, and enable control via your design software.
F	Power Input	The main 3-pin AC power inlet. Connect the provided standard power cord here.
G	USB Data	The USB-B port for connecting the engraver to your control computer for data transfer and machine control.
H	Fans	Two high-speed exhaust fans for system cooling. They operate automatically when the machine is powered on to dissipate heat generated during operation.

3.4 Software Main Interface

The laser marking machine is operated using the **BslAPPSimple** software, which must be installed on a compatible computer. Key configurable parameters and controls within the software are detailed below.



Number of processes: Specifies how many times the laser beam repeats its path over the same area. Increasing the number of passes typically enhances the contrast and depth of the mark.

Velocity: Sets the travel speed of the laser beam in millimeters per second (mm/s). Higher speeds result in shorter exposure time per unit area, generally producing lighter marks, while slower speeds create darker, deeper marks.

Laser Power: Determines the output energy level of the laser, expressed as a percentage of the machine's maximum rated power. Higher power levels deliver more energy to the material, producing clearer and more pronounced marks.

Power Setting Recommendation: To achieve an optimal balance between marking performance and equipment longevity, it is recommended to operate the laser within 10% to 75% of its rated power for most applications.

Lifespan Warning: Continuously operating the laser at levels exceeding 80% of its rated power can significantly shorten the service life of the laser module.

Frequency: Regulates the pulse repetition rate of the laser in kilohertz (kHz). A higher frequency can produce a denser and darker engraving on certain materials, while a lower frequency is often used for deeper engraving or cutting.

Preview Function (Red - F1): Projects a visible red beam to outline the intended laser path without actual firing. This allows for accurate path verification and position adjustment prior to marking, preventing material waste and errors.

Test Function (Mark - F2): Emits a brief laser pulse for focus calibration and parameter testing on the target material. Always use this function to verify settings before initiating a full marking job.

For comprehensive instructions, advanced features, and detailed software navigation for the BslAPPSimple software, please refer to the dedicated software manual provided in the accompanying USB flash drive.

4 Installation

4.1 Installation Overview

A complete working system consists of a fiber laser source, the laser arm with one of a galvanometer, a computer (not included) with engraving software (included), all applicable connection cables, a support column and a worktable. Users can also configure other additional accessories (such as a rotary axis) to suit their needs.



Use only the hardware, wiring, and power sources that came with or are compatible with this device.

Installing equipment that your device is not designed to work with can lead to poor performance, shortened service time, increased maintenance costs, property damage, and personal injury.

Please note the specific requirements of your system's installation. Every customer must understand these notes before installation to execute a proper setup and achieve safe laser performance. If you have any installation questions or problems, contact our technicians and customer support team.

Any auxiliary equipment must be adjusted to the base machine. Queries may be directed to the dealer or manufacturer of such equipment.

4.2 Selecting a Location

Prior to assembling your fiber laser marker, select a location meeting all of the following requirements:

- Be sure that it meets all of the requirements discussed in §1 **Safety Information** on Page 1.
- The location should be stable, level, dry, and climate controlled to ensure an ambient temperature 40–95 (°F) | 5–35 (°C) and an ambient humidity under 70%. In particular, the temperature and humidity together should not be close to the dew point. It is recommended to use a windowless room or to use blinds and/or curtains to avoid exposure to the potential additional heat of direct sunlight.
- The location should be free of dust and other airborne pollutants and well ventilated enough to process any fumes produced by the engraving process in accordance with all applicable laws and regulations. Depending on the materials to be processed, this may require construction of a dedicated ventilation system.
- It should be away from children; combustible, flammable, explosive, or corrosive materials; and sensitive EMI devices.
- The power cord should be plugged into a compatible and stable power source via a grounded 3-prong outlet. No other item should be drawing current from the same fuse.

- There should be fire-fighting equipment nearby and the local fire station's phone number should be clearly displayed.
- It is highly recommended to have an extra work table nearby in order to avoid placing objects on or directly adjacent to the machine, which could become a fire or laser hazard.

4.3 Electrical Grounding



- **DO NOT** use with an ungrounded 3-to-2 prong adapter. The machine's grounding should be checked regularly for any damage to the line or loose connections.
- Poor grounding **WILL** cause equipment failure and create a serious electrical shock hazard. The manufacturer and/or seller bear(s) no responsibility and assume (s) no liability for any damage, accidents, or injuries caused by bad grounding connections.

This machine employs a **CLASS 4** laser which is extremely high voltage and potentially dangerous. Therefore, users **MUST** securely ground it to avoid the buildup of static electricity.

Execute one of the following depending on your situation:



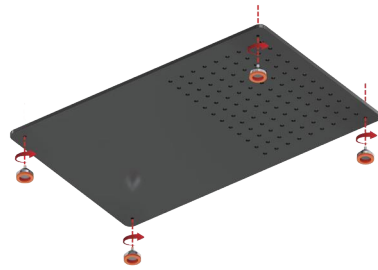
If applicable, execute both grounding methods.

- Connect the main power cable to a standard 3-prong outlet firmly.
- Connect the ground wire on the back of the main tower to a dedicated ground cable. The far end of the dedicated ground wire should be securely connected to a metal rod driven at least 8 feet (3 m) deep into soil located at least 5 feet (1.5 m) from the machine. The resistance along the line should be no greater than 5 Ω .

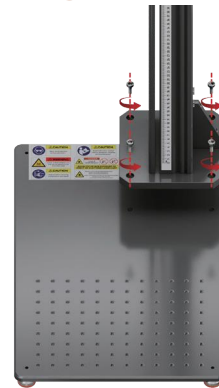


4.4 Assembly

1. Thread the four anti-slip feet into the base plate and tighten them securely.



2. Secure the column to the base plate with four screws.



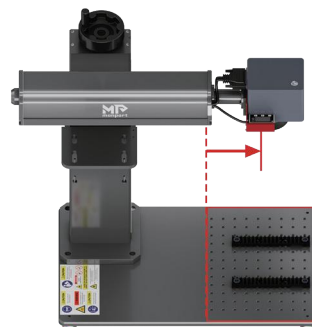
3. Install the laser arm onto the support column.

a. Align the four holes on the housing with the holes in its mounting bracket.

b. Tighten it into place with the bolts.



c. Mount the laser arm so that its lens is positioned over the work area.



4. Plug each end of the four-receptacle Lifting Motor cable into the corresponding ports on the Support Column and the Laser Arm.



5. (Optional) Install the positioning bars onto the worktable.

They can be left in place for all your projects or can be moved around to suit different projects.

a. Simply place the bars over the holes that will form the outer edge of the target material.

b. Fasten the positioning bars into place with the provided bolts.



6. Make all necessary connections between the various components.

a. Connect the main power cable from the main power port to the power supply.

b. Connect the USB cable from the USB port to the control computer.

c. (Optional) Connect the foot pedal cable to the main tower.



Position the cords out of the way to minimize any tripping hazard, using covers and cable managers as needed.

4.5 Installing the Software (BSLAppSimple)

4.5.1 Preparing a Control Computer

1. Prepare a control computer.



The control computer should not be placed more than 15 feet (4.5m) away from the laser marking machine to avoid possible interference with the signal in its line.

2. Prepare the applicable engraving software and its driver to operate the machine.

For your convenience, we provide a copy of the BSLAppSimple software, a BSLAppSimple User Manual and a BSLAppSimple driver in the provided USB drive.

To avoid the risk of data loss, **COPY AND PASTE** the whole USB disk folder onto your computer before using it.



LightBurn is also applicable with this machine; if you want to use it, see its manual to install the software and its driver.

4.5.2 Installing the BSLAppSimple Driver

The BSLAppSimple driver is included in the provided USB drive.

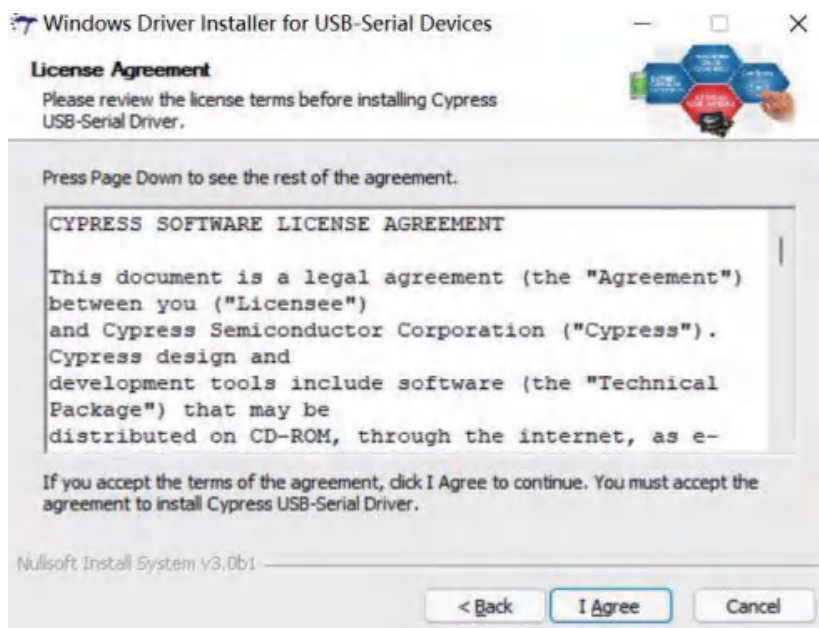
1. Turn on the laser marking machine and your computer.
2. Ensure that the USB cable is connected to the computer and laser marking machine, and insert the provided USB drive into your computer.
3. Open the USB flash drive, locate the BSLAppSimple driver installer named **1_CypressDriverInstaller**, and double-click it to install.



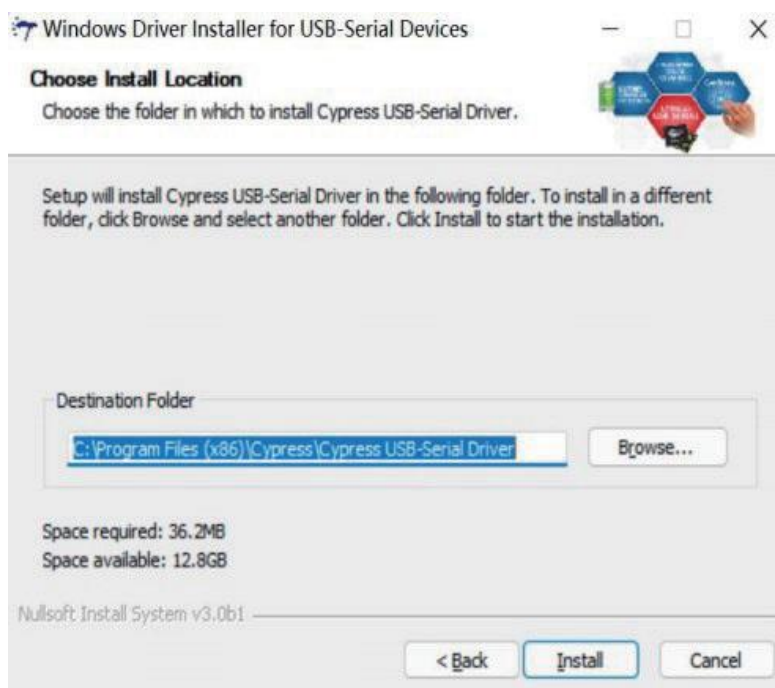
4. Click **Next**.



5. Click **I Agree**.



6. Confirm the installation location and click **Install**. The driver will begin installing.



7. Wait a few seconds, then click **Finish**. The driver installation is now complete.

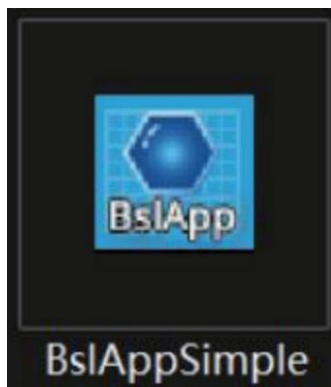


4.5.3 Running the BSLAppSimple Software

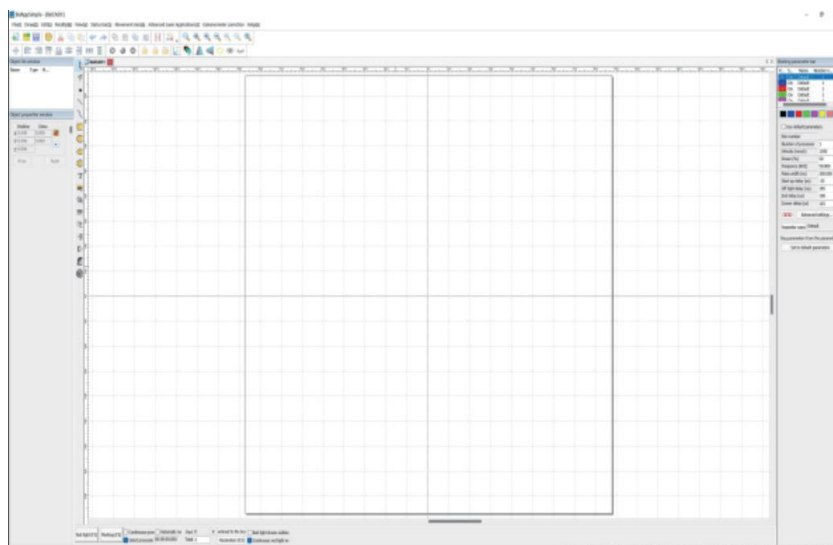
The BSLAppSimple software is included in the provided USB drive. You can use it without installation.

Familiarize yourself with your software's image design features and laser control settings before beginning the operation of the laser marking machine.

1. Double click **BSLAppSimple** to start the software.



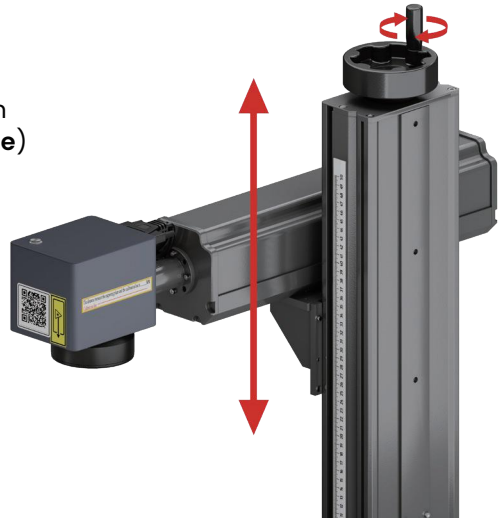
2. Wait for a moment and make sure the software runs successfully.



4.6 Initial Tests

4.6.1 Movement Test

Use the height adjustment knob to confirm that the laser arm moves smoothly and easily through its full range of motion. **(Test in Powered-Off State)**



4.6.2 Buttons Test

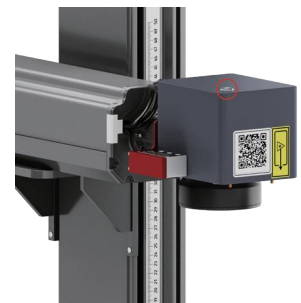
1. Check that the power cable is connected to the power supply.
2. Remove the lens cover.
3. Turn on the machine by activating its power from right to left in order:
 - a. Turn the emergency stop button to release it.
 - b. Press the middle button to power the mainboard and the galvo head.
 - c. Turn the LASER access key with the key to power the fiber laser source.



Activating these out of order may cause electrical hazards as the separate power supplies are grounded in order. Do not activate them too quickly. Give each power supply time to come on line, activating its fans. 3 seconds is sufficient.

To reduce the risk of electric shock, once the laser power supply is on, try to touch the machine's components with only one hand at a time.

4. Confirm that the button on the galvo head activates the two laser focus dots.



5. Confirm the **UP** and **DOWN** buttons on the main tower move the laser head up and down the support column.



6. Confirm the **AUTOFOCUS** button works fine.

- Place a piece of safely laserable material on the workbed, and confirm that the red dot emitted by the auto-focusing sensor can be projected onto the material.
- Press the AUTOFOCUS button on the main tower.
- Confirm that the laser arm rises to the proper focus height by activating the laser focus dots. They should converge to a single point on the surface of the material.

7. Confirm the emergency button works fine.

Because of the risk of fire and other hazards during engraving, this machine includes a large and easy-to-reach emergency stop button on its control panel. Press it down to stop the laser instantly. You should test that it works properly before conducting ,ANY other work with your machine.

- In **BSLAppSimple**, press Mark or hit F2 to fire the laser. Alternatively, use the foot pedal.
- While the laser is still active, hit the emergency stop button and observe whether the laser stops instantly. If the laser continues to fire, the emergency stop is not working and must be replaced before the machine can be used. Turn off the machine and contact customer service.

8. Turn off the laser marking machine from left to right in order:

- Turn the **LASER** access key to turn off the fiber laser source.
- Press the middle button to turn off the mainboard and the galvo head.
- Push down the emergency stop button. Again, wait about 3 seconds between each step to allow each system to safely disengage.

9. Cover the galvo lens cap.



4.7 Installing the Software (LightBurn)

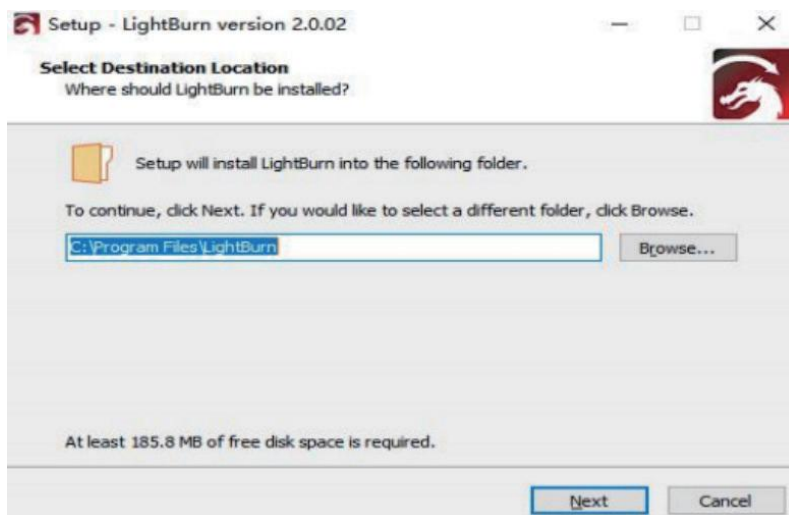
4.7.1 Download and Install the LightBurn

Please visit the official **LightBurn** website:

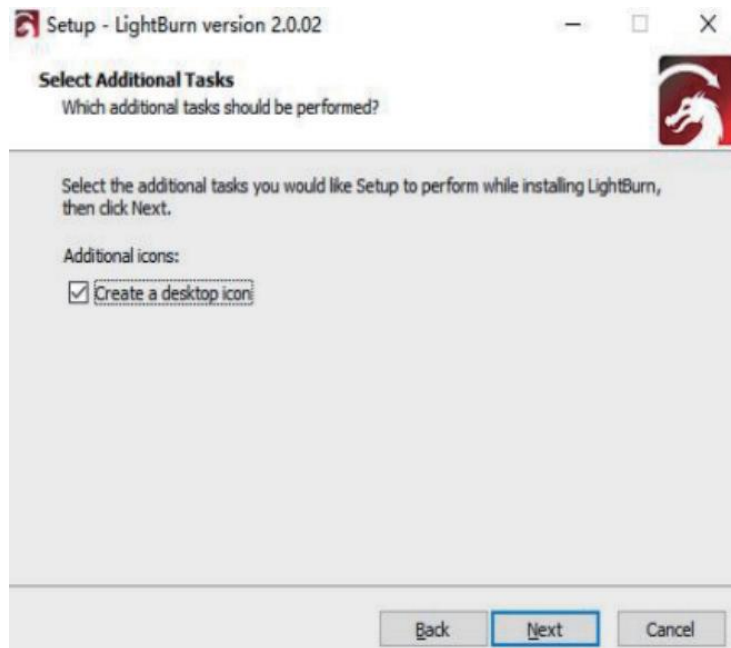
<https://lightburnsoftware.com/pages/download-trial> to download the latest version of the software. First-time users are eligible for a 30-day free trial of **LightBurn**.



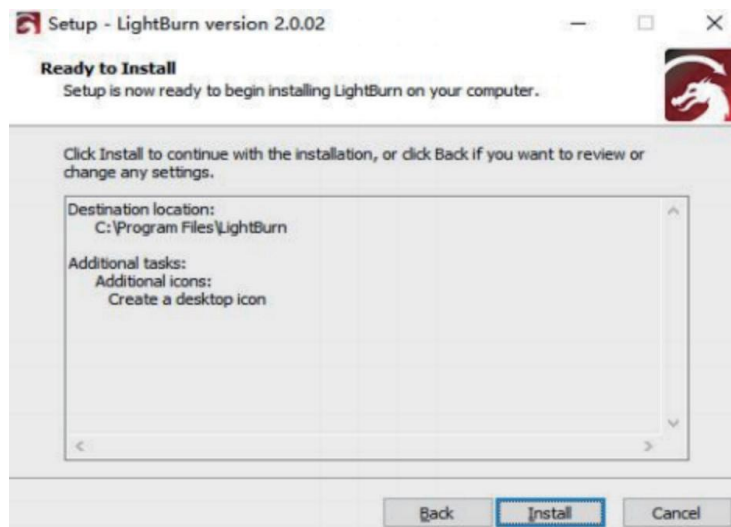
1. Run the LightBurn installation program, select the installation path (it is recommended to keep the default path to ensure system compatibility), and click **Next** to continue.



2. Check the **Create a desktop icon** option and click **Next** to continue the installation.



3. Check the installation summary information (**path/component/license agreement**), confirm it is correct, and then click the **Install** button to proceed with the installation. The system will automatically deploy the runtime environment. Please **do not** interrupt the power or force termination during this process.



4. This interface indicates that LightBurn has successfully completed installation. Check **Install EzCad2 driver** (used by galvos) and click **Finish** to exit the installation wizard.



5. Pop up a window that prompts you to install the driver. Please follow the instructions to proceed with the installation.

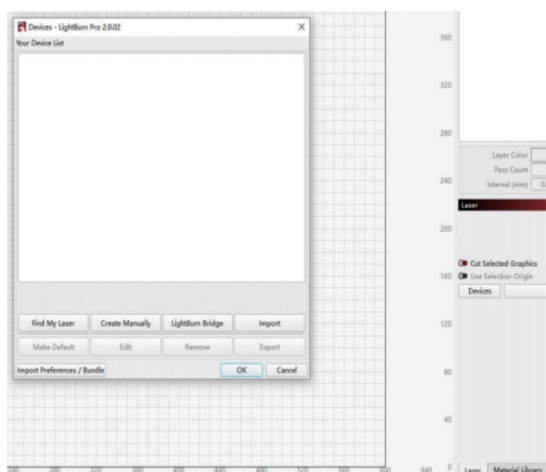
4.7.2 Connect to LightBurn

Note: The device driver must be installed prior to connection. If the driver is not present, please refer to section 4.5.2 for installation instructions.

Confirm that the machine is turned on and the data cable is connected. Open LightBurn and confirm the 30 day trial protocol and operation instructions in sequence in the pop-up window (click **OK**).

On the device selection interface, there are three ways to add a device: "**Import**," "**Find My Laser**," and "**Create Manually**." The following instructions use the most convenient method, "**Import**," as an example.

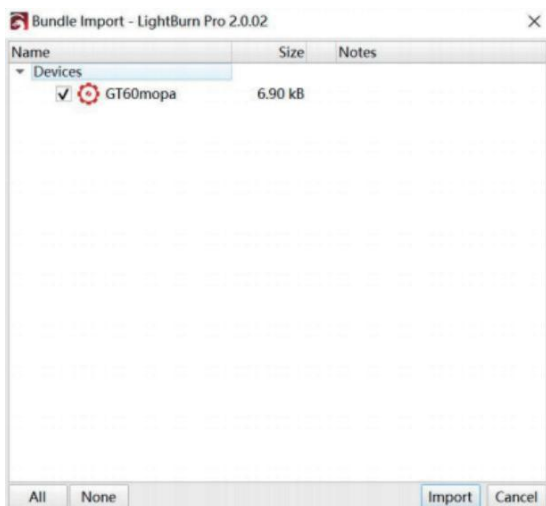
1. Click **Import**.



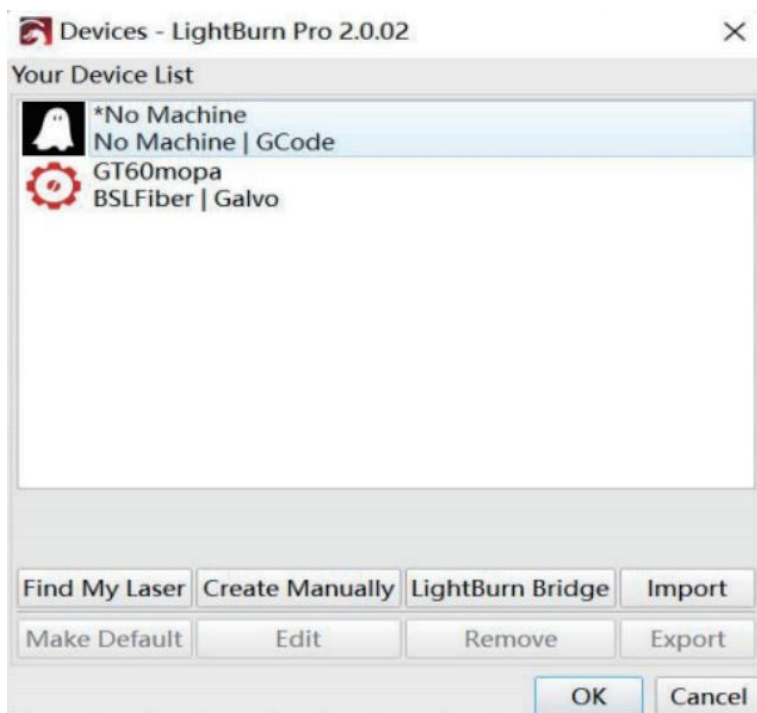
2. Locate and open the "**LightBurn Param File**" on the USB drive. (A device parameter file for connecting to LightBurn has been pre-saved for each machine before leaving the factory; please keep it safely.)



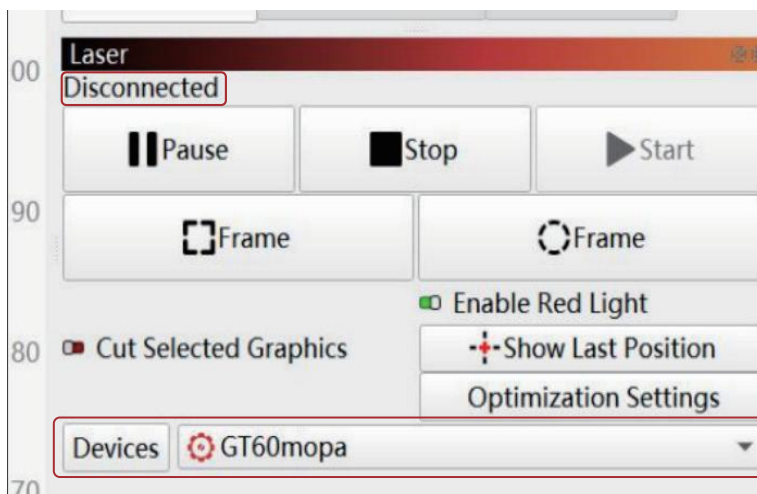
3. Select the device(s) and click **Import**.

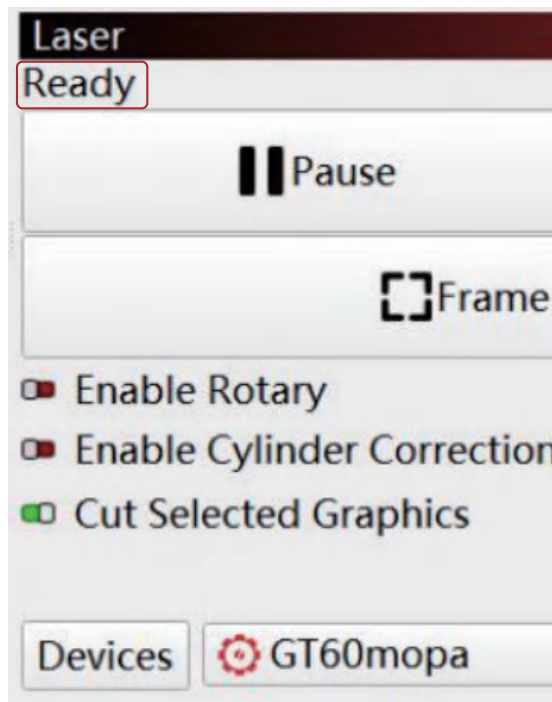


4. The appearance of the imported device in the device list indicates a successful import. Click **OK**.



5. Select the device you just added. After a few seconds, the software status will change from **Disconnected** to **Ready**, indicating a successful connection to the machine.





6. The machine connection is now complete and you can begin your creative engraving tasks.

Note : You can also choose the other two connection methods. For details, please contact **Monport After-sales Technical Support**.

5 Operation

5.1 Operation Overview



- **ALWAYS** operate this machine following all the instructions provided herein. Performance of procedures other than those specified herein may result in property damage and personal injury.
- **DO NOT** use this machine for purposes not specified herein.

This section will address only some of the options and features provided by the operation software BSLAppSimple for your reference. Before operating this machine, ensure that you have read and understand this entire manual (**particularly §1 Safety Information on Page 1**), the separate BSLAppSimple software manual, and any warnings provided on the machine.

5.2 General Instructions



Anyone else who might be exposed to direct or reflected laser beams **MUST** also wear protective eyewear. Put on any other PPE necessary for your material.

5.2.1 Turning On the Machine



- Turning the laser key and pressing the buttons out of order **MAY** cause electrical hazards as the separate power supplies are grounded in order. Do not activate everything quickly. Give each power supply time to come on line, activating its fans. Three seconds is sufficient.
- **ONLY** touch the components of this product with **ONE HAND** at a time during use to reduce the risk of electric shock.

1. Check that the power cable is connected to the power supply.

2. Remove the lens head cover.



3. Release the **EMERGENCY STOP** button by turning it clockwise if it is locked.

4. Press the **CONTROLLER** button.

5. Insert the laser key and turn clockwise by 90°.



6. Press the button on the scanning head to turn on the red dot pointer. The two red dots should be displayed on the working platform when the red dot pointer is on.



5.2.2 Focus

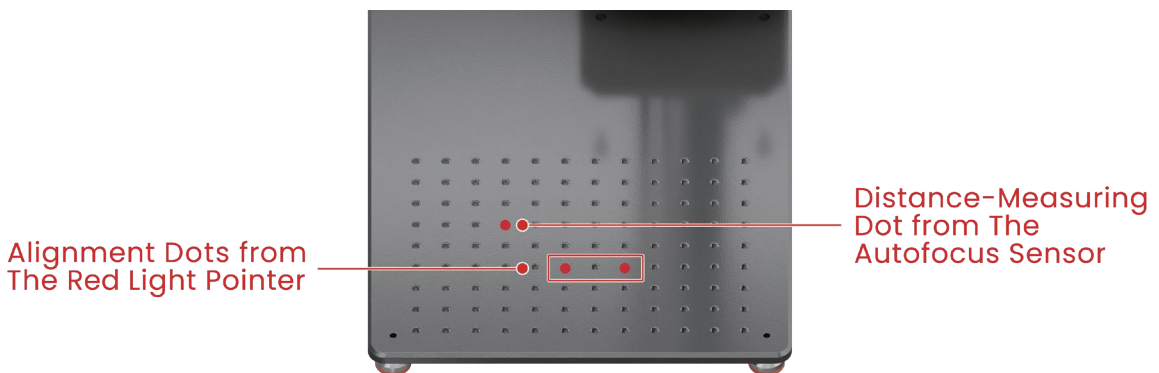
This machine supports two ways to focus: autofocus and manual focus. If the autofocus function fails, switch to manual focus.

Autofocus

1. Place the test material in the processing area and ensure three red dots are displayed on the test material (see illustration below). If your material is too small, place it under the distance-measuring red dot for focusing, then align it under the two alignment red dots for engraving.



- Make sure the material can be engraved by this machine. See §1.6 **Material Safety Instructions** (Page 6) for details.
- The test material should be the same as the actual material.



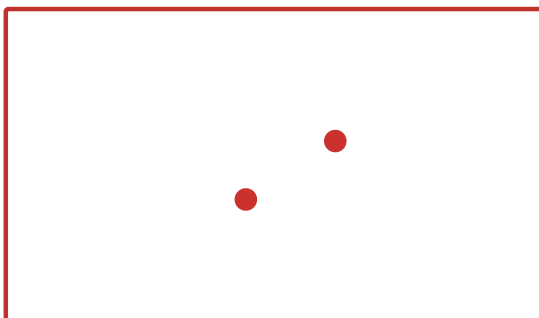
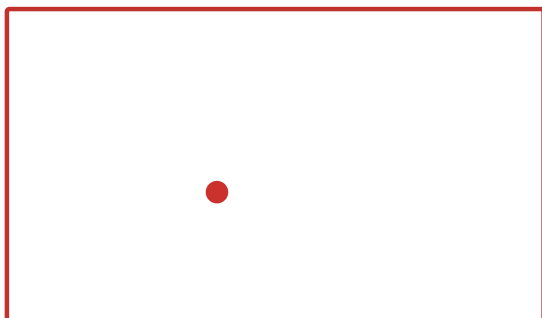
2. Press the **Autofocus** button on the front of the control box. The scanning galvanometer head will automatically adjust to the correct height for precise focusing.

Note: Objects taller than 150 mm on the workbench may cause the auto focus function to fail. The allowable height range for automatic focusing on the workbench is 80–500 mm.

Manual Focus

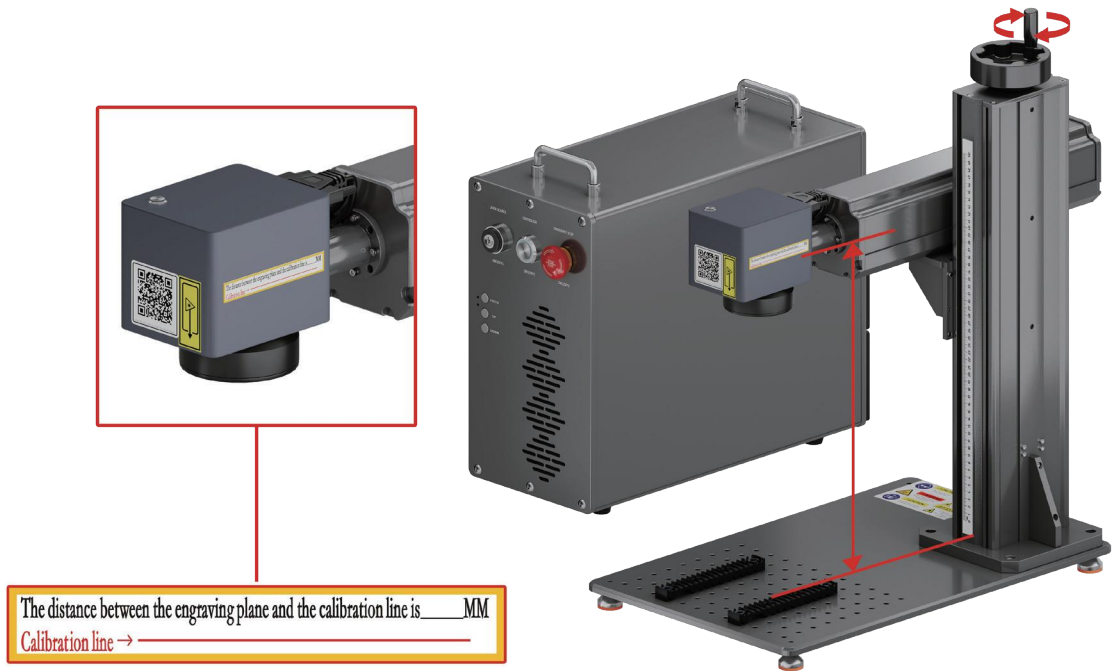
Method 1: Using the Red Dot Pointer

Press the button on the scanning head to turn on the red dot pointer. Move the scanning galvo head up or down by pressing the **Up** and **Down** buttons until the two alignment red dots merge into one.



Method 2: Using the Ruler

- Use the provided ruler to measure the distance from the calibration line on the scanning galvo head to the surface of the test material.
- Move the scanning galvo head up or down by pressing the Up and Down buttons until the measured height matches the value marked on the scanning galvo head. Note that this value may vary depending on the model.

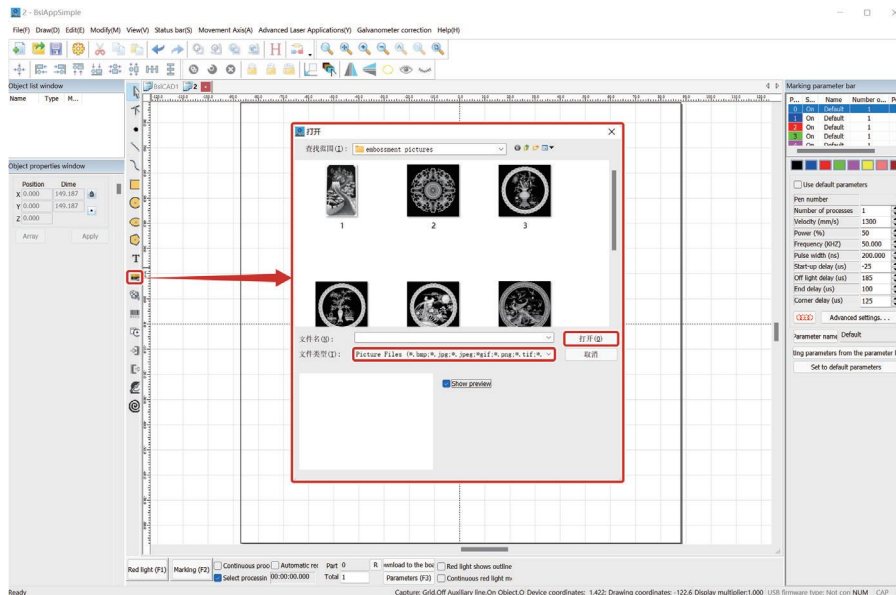


5.2.3 Preparing Your Design

- Make sure the control computer is connected to the machine via the USB cable.
- Double click **BSLAppSimple.exe** in the “software” folder on the USB drive to launch the application.
- Load or create a design in **BSLAppSimple**. This section provides a brief overview of creating bitmap images, vector graphics, and text in BSLAppSimple. For detailed parameter descriptions and settings, see the BSLAppSimple software manual on the USB drive.

Loading Bitmap Graphics

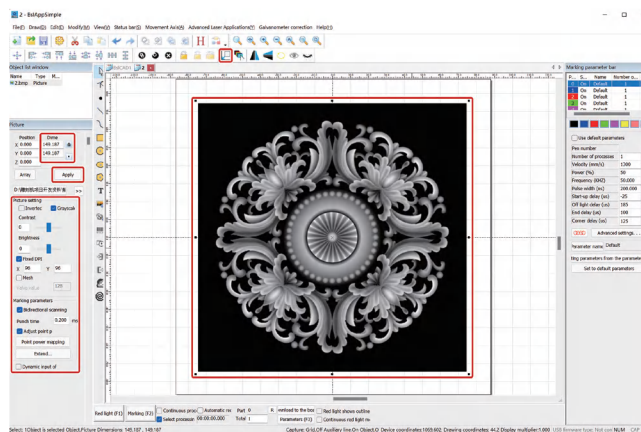
1. Click  to open a bitmap file.
2. Select the desired image. Click “Open”.



3. Setting image parameters:

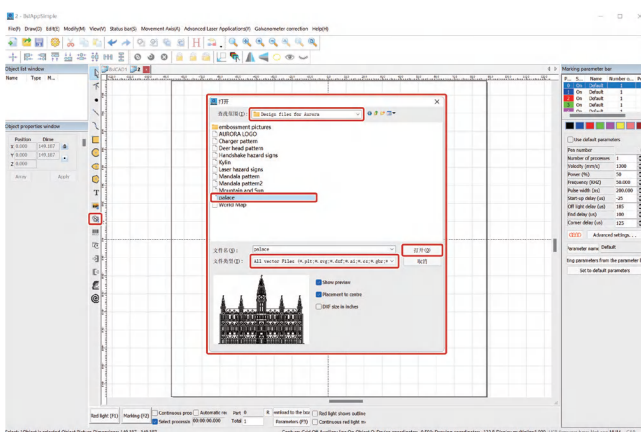
- Select the image.
- Center the image on the canvas.
- Set the image size.
- Set the image parameters.
- Click **Apply** to confirm.
- Set processing parameters: speed, power, frequency and pulse width (only for mopa laser).

See [§Setting Engraving Parameters](#) on Page 47 for details.



Loading Bitmap Graphics

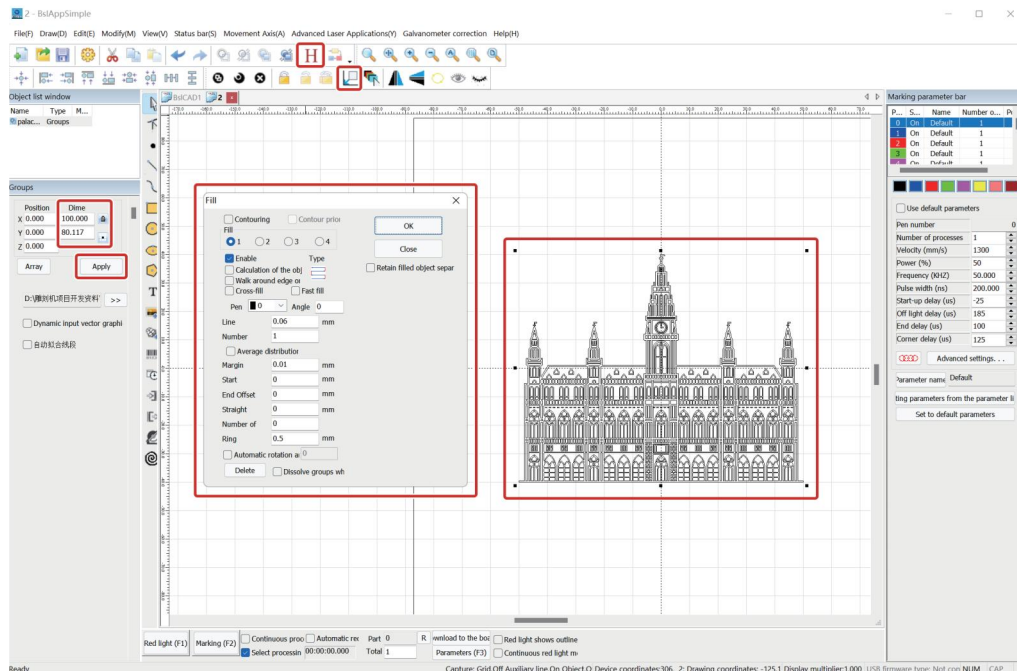
- Click  to open a bitmap file.
- Select the desired image. Click "Open".



3. Setting vector graph parameters:

- Select the image.
- Center the vector graphics on the canvas.
- Set the vector file parameters.
- After setting the graphic size, click **Apply**.
- Click **H** to fill selected objects and set parameters; click **OK** after completing the settings.
- Set processing parameters: speed, power, frequency and pulse width (only for mopa laser).

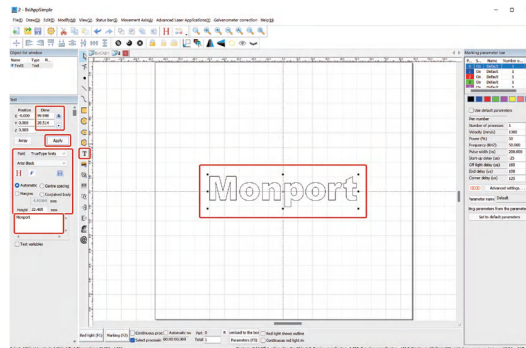
See [§Setting Engraving Parameters](#) on Page 47 for details.



Creating Text

1. Click  to create text.
2. Click the left mouse button on the canvas and "TEXT" appears.
3. Modify the text.
4. Click **Apply**. The text content entered is displayed in the canvas.
5. Set the text size.
6. Configure other settings (fill, text style, font, etc.).
7. Set processing parameters: speed, power, frequency.

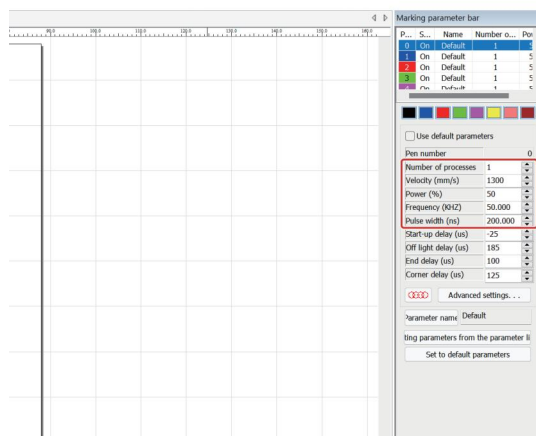
See [§Setting Engraving Parameters](#) on Page 47 for details.



Setting Engraving Parameters

Customize your contrast and engraving depth by adjusting the engraving parameters in BSLAPPSimple.

- **Image Contrast**: Increase the frequency to darken the image; decrease it to lighten the image.
- **Engraving Depth**: Increase energy per unit area by lowering the speed, increasing the laser power, or increasing the number of passes.





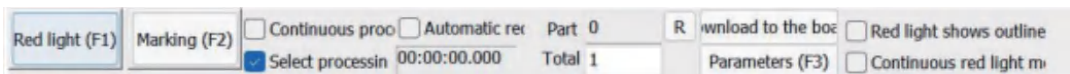
Excessive engraving depth can compromise image clarity, particularly on coated materials. Continuously operating above 80% of the rated settings may shorten the expected service life of your laser.

Set the resolution to 500 DPI for optimal results. However, if working with certain plastics, a lower resolution may reduce flaming and concentrate pulse energy, leading to superior image quality.

Marking Settings

- **Red (F1):** Projects a frame around the object without emitting laser energy. This indicates the processing area and helps locate the workpiece. Available on models with a red light pointer. Press F1 on the keyboard to activate.
- **Mark (F2):** Starts processing. Press F2 on the keyboard to run this command.

For other marking settings, see the BslAPPSimple software manual.



5.2.4 Testing the Engraving

1. Activate the laser guidance system by clicking **Red** in BslAPPSimple or hitting **F1** on the keyboard. The design should be displayed in red dot on the worktable, showing where the laser will fire.
2. Place an expendable piece of the material to be engraved in the location shown by the laser guidance. The test material should be of the same material as the actual one you are going to mark.
3. Click **Mark** in BslAPPSimple or press **F2** on the keyboard to engrave your design. Alternatively, you can activate the laser by using the foot pedal.

The laser is invisible but will create a buzzing noise and sparks and begin engraving when it is correctly focused on your test material.



- **DO NOT** stare at the laser in operation even with protective eyewear.
- When an unexpected situation occurs, press the **EMERGENCY STOP** button **IMMEDIATELY** to halt the machine's operation.
- Watch for possible issues like sparks or fires, and be prepared to quickly extinguish a fire if necessary.

4. Examine the quality of your first run and adjust the laser parameters in BslAPPSimple as necessary to achieve your desired effect.

5.2.5 Stop and Resume

During engraving, if an unexpected situation occurs, press the **EMERGENCY STOP** button **IMMEDIATELY** to halt the machine. To resume normal operation:

1. Release the **EMERGENCY STOP**.
2. Resume operation following the normal operational sequence.

5.2.6 Engraving

1. Replace the test material with the actual material.
2. Use the foot pad or press **Mark** in BslAPPSimple or hit **F2** on the keyboard to engrave your pattern.

The foot pedal is particularly useful for continuous or repeated operation of the laser once you've settled on your design and its ideal parameter settings. You can also achieve more control of the marking process by reducing the laser's speed and using the foot pedal.

5.2.7 Finishing-up

After completing your engraving job, deactivate the systems as follows:

1. Close the **BslAPPSimple** software and disconnect the USB cable from your computer.
2. Press the button on the scanning head to turn off the red dot pointer.
3. Turn the key counter clockwise.
4. Press the **CONTROLLER** button.
5. Press the **EMERGENCY STOP** button to turn off the machine. For best results, disconnect your marking machine from its power supply between uses. Unplug it or turn off its intermediary surge protector.
6. Fully clean the worktable and the galvanometer lens. Cover the galvanometer lens afterward.



5.3 Instructions for Specific Materials

When engraving a new material, it is good practice to begin with a test grid—a series of small squares engraved using a range of speed, power, and frequency settings. This method helps determine the optimal parameters for the desired result. To streamline this process, the following general guidelines are provided for commonly engraved materials. Note that these are for reference only; actual results may vary based on your specific machine, material composition, and operating conditions. It is the user's responsibility to review material safety data sheets and other authoritative sources to ensure safe operation with any material or configuration. Certain materials may require dedicated workspace preparation and personal protective equipment beyond what is included with the engraver.

5.3.1 Metals

When engraving metals, generally use high power, a low frequency, and low to medium speed settings. To avoid using your marker at greater than 80% power for extended periods, you can also get similar effects by reducing the power somewhat while also increasing the number of passes or decreasing the engraving speed.

Be mindful that some metals will produce conducting, reflective, and/or toxic dust. Softer metals naturally produce more dust during engraving, while harder metals can require higher power settings that also produce more dust. In addition to the risk to the user's skin and eyes, there may be enough dust produced (especially for repetitive industrial applications) that a full ventilation system is required to address the problem. Similarly, operators and others in the work area may need to use breathing PPE such as masks and respirators.

- **Aluminum:** Bare aluminum requires a somewhat higher frequency than other metals and will never produce a strong black mark similar to those created by engraving steel. When darker marking is required, consider employing anodization or producing a deep engraving that can be darkened by using black epoxy or other filler. Anodized aluminum requires a little more speed but a very low frequency.
- **Powder Coated Metals:** Metals with a powder coating usually require a very high frequency and, for best results, at least 3 passes to remove the coating and polish the bare lower layer.
- **Precious Metals:** Gold and similarly soft metals should be engraved with less power but a moderate speed. Silver and other semi durable metals are best engraved at a slightly higher power and slightly slower speed, but still not at the same power and speed as steel or aluminum.

5.3.2 Plastics

When engraving plastics, generally use low-power and high-speed settings. Marking and engraving with too much power or at too low a speed can concentrate too much energy at the point of contact, causing the plastic to melt. Among other problems, this may produce poor engraving quality, noxious fumes and even fires.

5.3.3 Stone

When engraving various kinds of stone, generally use moderate power and speed at low frequency. As with ceramics and metals, be mindful of the dust created (especially for repetitive industrial applications) and take similar measures to ensure the safety of users and others in the work area.

6 Maintenance



- Adjustment, maintenance, and repair of the electrical components of this machine must be done **ONLY** by trained and skilled professionals to avoid fires and other malfunctions, including potential radiation exposure from damage to the laser components. Because specialized techniques are required for testing the electrical components of this marking system, it is recommended such testing **ONLY** be done **BY** the manufacturer, seller, or repair service.

- Unless otherwise specified, **ONLY** undertake adjustment, maintenance, and repair of the machine **WHEN** it is turned off, disconnected from its power supply, and fully cooled. For maximum safety, wait about 3 minutes after turning the machine off before adjusting electronic parts. This will allow time for the ground connection to clear any residual charge.

To ensure normal use of the plate laser machine, regular maintenance is essential. Handle with care during maintenance as it contains high-precision components, and follow each part's procedures closely to prevent damage.

- Keep the workroom clean and dust-free at all times.
- Ensure the device is fully powered off when not in use.
- Cover the galvanometric lens when it is not in use.
- Clean the worktable after use with a cloth wetted with greater than 75% rubbing alcohol. **NEVER** clean this device with abrasive or caustic cleansers, with aerosol sprays, or with enough water to enter any electrical component. **ALWAYS** allow surfaces to **FULLY** dry **BEFORE** further use.
- Clean the lens with a cotton swab and alcohol wipe. The device can only be used after the alcohol has evaporated.
- If removing dust from the device's vents using a vacuum, **ONLY** use the lowest power setting to avoid damage to internal components.

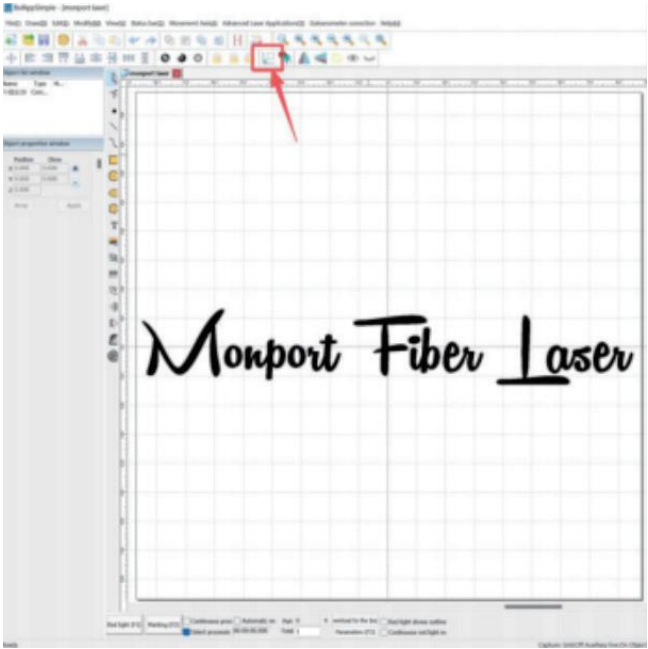


No other servicing should be done by the operator. **DO NOT** attempt to service or replace **ANY** parts yourself.

7 Troubleshooting

7.1 Common Problems

Problems	Solutions
The Driver Installation Failure	Make sure you are using an authentic Windows system; if not, use another computer loaded with the right software.
	Use a different data cable.
	The computer port or its board has a problem; try with another computer.
No Laser Output	Correct the focus by adjusting the height of the laser arm.
	Correct the software parameters if they are invalid or mistaken.
	Have a technician fix or establish the connection between the laser and the mainboard.
	Have a technician fix or establish the connection between the laser and its power supply.
	If either the fiber laser source or its power supply malfunctions, have a technician replace them.
No Engraving Despite Laser Output	Confirm that the material can be safely engraved with this device.
	Correct the focus by adjusting the height of the laser arm.
	Adjust the software parameters to create greater intensity.
	Have a technician check the control panel, scanning lens, and its power supply. Correct any problems or replace the part.

Problems	Solutions
Other Laser Errors	Have a technician check the fiber laser source and the mainboard. Correct any problems or replace the part.
No/Too Light Red Dots From The Red-Dot Pointer	Adjust the focal length. If it still doesn't work, contact our customer service.
Deformed Preview Or Engraved Patterns	Check and fix the parameters. If it still doesn't work, contact our customer service.
Nothing Displayed On Canvas Board When Importing Text or Image	Click the practical center button. The picture or text should be in the center of the canvas.
	 The screenshot shows the Monport software interface. A red box highlights the 'Practical Center' button in the top toolbar, with a red arrow pointing to it. The main canvas displays the text 'Monport Fiber Laser' in a stylized font, centered on a grid.



**20/30/50/60/80/100/200W | MOPA |GT Series
Fiber Laser Marking Machine**

User Manual