

## Longer B1 20W

# Longer Laser B1 20W Engraver Instruction Manual

Model: B1 20W

## 1. IMPORTANT SAFETY INFORMATION

Operating a laser engraver involves potential risks. Adhere to all safety guidelines to prevent injury or damage.

- **Eye Protection:** Always wear appropriate laser safety glasses when the machine is in operation. The laser module uses panoramic filter glass to block blue light and filter 97% of ultraviolet light, but direct exposure should still be avoided.
- **Flame Detection:** The machine is equipped with flame detection. If a flame is detected, the machine will instantly shut down.
- **Positional Protection:** The engraver features positional protection, automatically shutting down if there is any movement or tilting during operation.
- **Limit Switches:** X and Y axis limit switches enhance positioning accuracy and prevent the laser head from exceeding the working area.
- **Safety Lock:** A newly added safety lock prevents unintended operation, especially by children. Keep the key in a safe place.
- **Ventilation:** Ensure adequate ventilation in your workspace to dissipate smoke and fumes produced during engraving and cutting.
- **Material Compatibility:** Only engrave or cut materials suitable for diode lasers. Avoid highly reflective materials or materials that produce toxic fumes.

## Flame detector & Position Movement Protection

When the laser engraving machine moves, tilts or has a fire during processing the laser engraving machine will stop immediately.

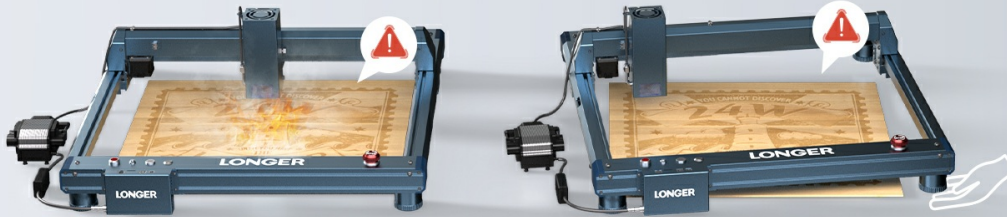


Figure 1: Flame detection and position movement protection in action.



## Newly Upgraded Safety Lock

To prevent children from using the engraving machine at will and protect children's safety.

Figure 2: Detail of the safety lock mechanism.

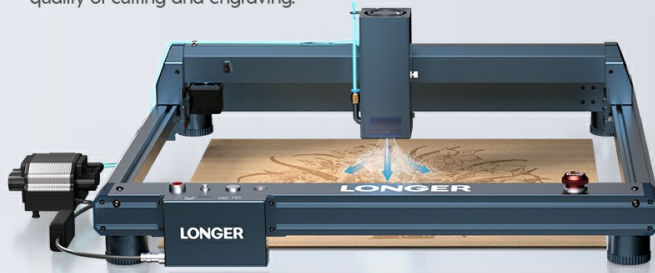
## 2. SETUP GUIDE

Follow these steps to set up your Longer Laser B1 20W Engraver.

1. **Unpacking:** Carefully remove all components from the packaging. Verify that all parts listed in the packing list are present.
2. **Assembly:** Assemble the machine according to the included assembly instructions. Ensure all screws are tightened securely.
3. **Placement:** Place the engraver on a stable, level surface in a well-ventilated area.
4. **Connections:** Connect the power adapter and any necessary data cables (USB, TF Card, or ensure Wi-Fi connectivity is established).
5. **Air Assist Pump Installation:** Connect the automatic air assist pump. This pump is controlled by the mainboard through laser settings to automatically clear smoke and clean the surface, enhancing cutting and engraving quality.
6. **Software Installation:** Install the recommended software, such as LaserGRBL (free) or LightBurn, on your computer (compatible with Windows, Mac OS, and Linux).
7. **App Setup:** For mobile control, download the dedicated LaserBurn APP. This app supports Wi-Fi network distribution, motion control, drawing creation, preview, engraving parameter settings, and more.

## Equipped with an Assist Pump

Through lightburn parameter Settings, the motherboard can automatically control the air pump switch, remove smoke, clean the surface, improve the quality of cutting and engraving.



Without air assist : yellowed surface



With air assist : clean surface

Figure 3: The automatic air assist pump in operation, showing its effect on engraving quality.



Figure 4: The LaserBurn App for mobile control.

### 3. OPERATING INSTRUCTIONS

This section outlines the basic operation of your Longer Laser B1 20W Engraver.

1. **Material Placement:** Place the material to be engraved or cut on the working surface. Ensure it is flat and securely positioned.
2. **Focus Adjustment:** The laser module features a 40mm fixed focal length for consistent precision. No manual focus adjustment is typically required for standard operations.
3. **Software Interface:** Open your chosen software (LaserGRBL or LightBurn). Import or create your design.
4. **Parameter Settings:** Adjust laser power, speed, and passes based on the material type and desired outcome. The 20000mW light output power allows for efficient processing.
5. **Preview and Positioning:** Use the software's preview function to ensure correct placement of your design on the material. The X and Y axis limit switches assist in accurate homing and positioning.
6. **Start Engraving/Cutting:** Initiate the process from the software or the mobile app. Monitor the operation closely.
7. **High Efficiency:** The machine operates at a top working speed of 36000mm/min, enhancing productivity.
8. **Versatile Applications:** Capable of cutting 25mm wood, 35mm black acrylic, and 0.05mm stainless steel, among other materials. The latest spot compression technology with four 6W Diode Lasers contributes to its strong cutting ability.



Figure 5: Cutting capabilities of the 24W laser output power.



Figure 6: Speed comparison, highlighting the 36000mm/min engraving speed.

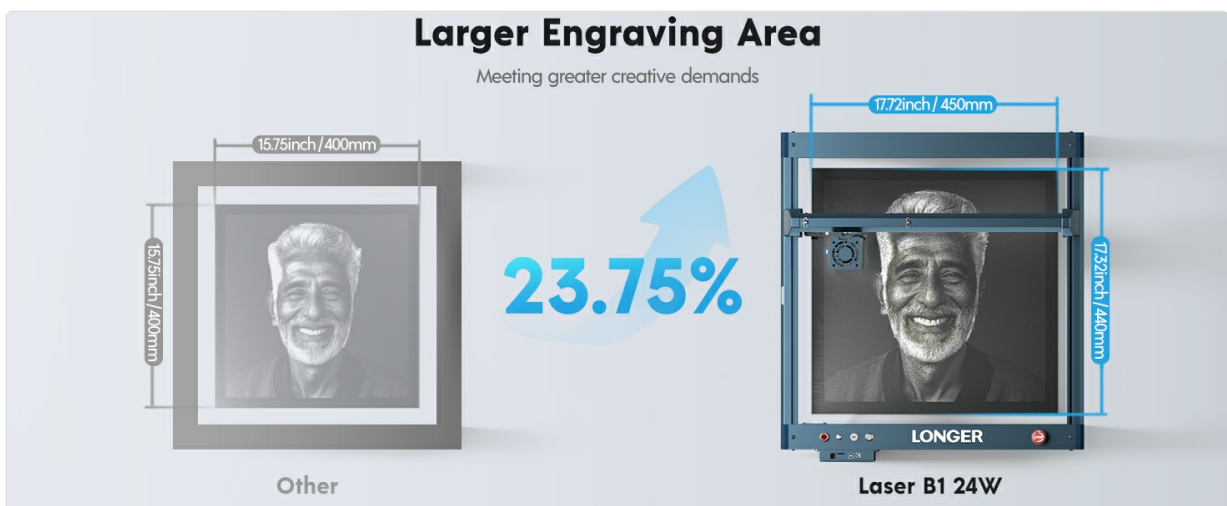


Figure 7: The spacious 450x440mm working area.

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Video 1: Official product video demonstrating the setup, operation, and various capabilities of the Longer Laser B1 20W Engraver, including cutting different materials, app control, and safety features.

## 4. MAINTENANCE

Regular maintenance ensures optimal performance and extends the lifespan of your laser engraver.

- **Cleaning the Lens:** Periodically clean the laser lens with a soft, lint-free cloth and lens cleaning solution to maintain laser beam quality.
- **Cleaning the Working Area:** Remove debris and dust from the working area and honeycomb panel after each use to prevent interference with laser operation and maintain a clean environment.
- **Lubrication:** Apply a small amount of lubricant to the guide rails and moving parts as recommended by the manufacturer to ensure smooth movement of the laser head.
- **Firmware Updates:** Check the Longer official website for any available firmware updates to ensure your machine has the latest features and bug fixes.

## 5. TROUBLESHOOTING

Refer to this section for solutions to common issues.

| Problem                                | Possible Cause                                                                                  | Solution                                                                                                                    |
|----------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Laser not firing                       | Power cable disconnected, safety lock engaged, software error, laser module fault.              | Check power connections. Ensure safety lock is disengaged. Restart software and machine. Contact support if issue persists. |
| Poor engraving/cutting quality         | Incorrect laser parameters (speed/power), dirty lens, material not flat, air assist not active. | Adjust laser settings. Clean the laser lens. Ensure material is flat. Verify air assist pump is functioning.                |
| Machine not connecting to computer/app | Incorrect cable connection, Wi-Fi issues, driver problems, software firewall.                   | Check USB/TF card connections. Verify Wi-Fi network. Reinstall drivers. Temporarily disable firewall.                       |
| Machine stops unexpectedly             | Flame detection triggered, positional protection triggered, emergency stop button pressed.      | Check for flames or movement. Reset the machine after addressing the cause. Ensure emergency stop button is not engaged.    |

## 6. SPECIFICATIONS

| Feature            | Detail                              |
|--------------------|-------------------------------------|
| Model Number       | laser B1 20w                        |
| Laser Output Power | 20000mW (20W)                       |
| Working Area       | 450 x 440 mm (17.72 x 17.32 inches) |
| Engraving Speed    | Up to 36000mm/min                   |
| Mainboard          | 32-bit high-performance mainboard   |
| Focal Length       | 40mm (fixed)                        |

| Feature                | Detail                                        |
|------------------------|-----------------------------------------------|
| Connectivity           | USB, TF Card, Wi-Fi, APP                      |
| Software Compatibility | LaserGRBL, LightBurn (Windows, Mac OS, Linux) |
| Product Dimensions     | 29.33 x 22.44 x 5.31 inches                   |
| Item Weight            | 21.1 pounds                                   |

## 7. WARRANTY INFORMATION

Longer products typically come with a manufacturer's warranty covering defects in materials and workmanship. For specific warranty terms and duration, please refer to the warranty card included with your product or visit the official Longer website. Keep your proof of purchase for warranty claims.

## 8. SUPPORT

For technical assistance, troubleshooting, or any product-related inquiries, please contact Longer customer support:

- **Technical Support Phone:** +1 888-575-9099
- **Operating Hours (EST, UTC-5):**
  - Monday - Friday: 9:00 AM - 6:00 PM
  - Sunday - Thursday: 8:30 PM - 7:00 AM
- **Online Resources:** Visit the official Longer website for FAQs, drivers, software downloads, and additional support materials.