

## CREALITY FALCON Falcon A1 Pro 20W

# Creality Falcon A1 Pro 20W Laser Engraver Instruction Manual

Model: Falcon A1 Pro 20W

## 1. INTRODUCTION

This manual provides detailed instructions for the safe and effective use of the Creality Falcon A1 Pro 20W Laser Engraver. It covers assembly, operation, maintenance, and troubleshooting to ensure optimal performance and longevity of your device. Please read this manual thoroughly before operating the machine.



*Image 1.1: Creality Falcon A1 Pro 20W Laser Engraver*

## 2. SAFETY INFORMATION

**WARNING: This is a Class 4 laser product. Direct exposure to the laser beam can cause severe eye and skin damage. Always follow safety guidelines.**

- The enclosed design features a transparent cover that filters out 99% of laser radiation. Always keep the cover closed during operation.
- The machine includes a lid open stop function, an emergency stop button, and air assist for enhanced safety. Familiarize yourself with these features.
- Never engrave highly reflective materials such as mirror-finished metals or mirrored acrylic, as this can cause dangerous laser reflections.
- Ensure adequate ventilation in your workspace to manage smoke and fumes produced during engraving.
- Keep the workspace clear of flammable materials.



*Image 2.1: Dual Flame Detection System*

This image illustrates the integrated dual flame detection system, featuring both a top-mounted AI vision

sensor and an infrared sensor, designed to monitor the engraving area for potential hazards and enhance operational safety.

### 3. PRODUCT OVERVIEW AND FEATURES

The Creality Falcon A1 Pro 20W is an enclosed laser engraver and cutter designed for precision and efficiency. Key features include:

- **Smart Touchscreen:** Simplifies operation with direct access to history files and real-time previews.
- **Autofocus with HD Camera:** Achieves precise material placement and focus in approximately 3 seconds, offering a full-bed preview.
- **High-Speed CoreXY System:** Engraving speeds up to 600 mm/s for increased productivity.
- **Integrated Air Assist:** Contributes to cleaner cuts and reduced post-processing.
- **Enclosed Design:** Provides a safer and quieter operating environment by filtering laser radiation, blocking noise, and containing smoke.
- **App & PC Control:** Compatible with Creality Falcon Design Space (PC & Mobile), LightBurn, and LaserGRBL software for design and real-time monitoring.



*Image 3.1: HD Vision for Precise Targeting*

This image demonstrates the functionality of the HD top camera, which allows for full-area preview and precise targeting of designs on the material, including pre-calibration and full-frame viewing capabilities.



*Image 3.2: Autofocus Mechanism*

This illustration details the autofocus system, which utilizes a red laser dot for precise positioning and AI camera recognition to achieve accurate focus on various materials, ensuring clean engraving results.



*Image 3.3: High-Speed Engraving*

This image highlights the machine's capability for high-speed engraving, showcasing the laser head in motion and emphasizing its maximum speed of 600 mm/s for efficient project completion.

### 4. SETUP

The Creality Falcon A1 Pro is designed for quick setup, arriving largely pre-assembled for a plug-and-play experience.

1. **Unpacking:** Carefully remove all components from the packaging. Retain packaging for future transport or storage.
2. **Placement:** Place the engraver on a stable, level surface in a well-ventilated area. Ensure sufficient space around the machine for operation and maintenance.
3. **Power Connection:** Connect the power cable to the machine and then to a suitable power outlet.
4. **Software Installation:** Download and install the Creality Falcon Design Space software from the official Creality website. The machine is also compatible with LightBurn and LaserGRBL. Refer to the software's documentation for installation and initial configuration.

5. **Initial Checks:** Before first use, ensure the emergency stop button is disengaged (if pressed) and all cables are securely connected.

## 5. OPERATION

Operating the Falcon A1 Pro involves preparing your design, setting up the material, and initiating the engraving or cutting process.

### 5.1. Preparing Your Design

Use Creality Falcon Design Space, LightBurn, or LaserGRBL to create or import your designs. The software allows for graphic outline extraction, batch engraving, and parameter quick fill.



*Image 5.1: Falcon Design Space Software*

This image displays the Falcon Design Space software, available on both PC and mobile, illustrating its interface for creating and managing engraving projects, including features for design creation and pattern tracing.

### 5.2. Material Placement and Focus

1. Place your material securely on the working bed. The working area is 381 x 305mm.
2. Utilize the HD camera for a full-bed preview to precisely position your design.
3. Engage the autofocus function. The machine will automatically adjust the laser focus in approximately 3 seconds.

### 5.3. Using the Smart Touchscreen

The integrated touchscreen provides an intuitive interface for managing your projects.



*Image 5.2: Smart Touchscreen Interface*

This image shows the smart touchscreen of the engraver, illustrating its intuitive working process with a project display, progress tracking, and options to pause or stop operations directly from the device.

- Access history files to quickly reopen recent projects without re-importing.
- Monitor the engraving process in real-time directly on the screen.
- Adjust basic settings and control job execution.

### 5.4. Compatible Materials

The Falcon A1 Pro is suitable for engraving and cutting various materials, including:

- Wood (e.g., basswood, walnut, plywood)
- Acrylic (e.g., black acrylic)
- Metal (for engraving)
- Leather

- Paper

**IMPORTANT: Avoid engraving highly reflective materials such as mirror-finished metals or mirrored acrylic.**

## 6. MAINTENANCE

Regular maintenance is essential for the longevity and optimal performance of your laser engraver. Specific maintenance procedures are detailed in the comprehensive user manual available on the official Creality Falcon support website. General maintenance includes:

- **Cleaning the Lens:** Regularly clean the laser lens with a specialized lens cleaning solution and cloth to ensure clear laser output.
- **Cleaning the Working Bed:** Remove debris and residue from the working bed after each use.
- **Lubrication:** Periodically lubricate moving parts as specified in the detailed maintenance guide.
- **Air Assist System:** Ensure the air assist nozzle is clear and free of obstructions.

## 7. TROUBLESHOOTING

This section addresses common issues you might encounter. For more detailed troubleshooting, refer to the official Creality Falcon support resources.

### 7.1. Common Issues and Solutions

- **Machine Not Powering On:**
  - Check all power connections. Ensure the power cable is securely plugged into both the machine and the outlet.
  - Verify the power outlet is functional.
  - Ensure the emergency stop button is disengaged (rotated to release).
- **Laser Not Firing or Weak Output:**
  - Clean the laser lens as per maintenance instructions.
  - Verify material settings (power, speed) in your software are appropriate for the material type.
  - Ensure the material is properly focused. Re-run the autofocus procedure.
  - Check for obstructions in the laser path.
- **Inaccurate Engraving/Cutting:**
  - Ensure the material is securely placed and not shifting during operation.
  - Re-calibrate the camera if positioning is consistently off.
  - Check for loose belts or components in the CoreXY system.
  - Verify design dimensions and placement in the software.
- **Software Connection Issues:**
  - Ensure the machine is properly connected to your computer via USB or network.
  - Restart both the machine and your computer.
  - Update software to the latest version.
  - Consult the software's specific troubleshooting guide (Creality Falcon Design Space, LightBurn, LaserGRBL).
- **Smoke/Fumes Excessive:**

- Ensure proper ventilation in your workspace.
- Verify the air assist system is functioning correctly and its nozzle is clear.

- **Engraving on Metal is Faint:**

- Metal engraving often requires multiple passes or specific settings. Start with low power and faster burn settings, then adjust incrementally.

- **Laser Head Not Moving:**

- Check for any physical obstructions preventing movement.
- Ensure the machine is not in an error state (check touchscreen for messages).
- If the laser head attempts to move beyond its limits, power cycle the machine and ensure no objects are blocking its path during homing.

## 8. SPECIFICATIONS

Specification	Value
Model	Creality Falcon A1 Pro 20W
Laser Power Output	10000mW (10W)
Laser Class	Class 4
Engraving Speed	Up to 600 mm/s
Working Area	381 x 305 mm
Product Dimensions	177.17 x 94.49 x 255.91 inches
Item Weight	46.7 pounds
Manufacturer	CREALITY FALCON
First Available Date	June 17, 2025

## 9. WARRANTY AND SUPPORT

For detailed warranty information, product registration, and technical support, please visit the official CREALITY FALCON website or contact their customer service. Keep your purchase receipt as proof of purchase for warranty claims.

No official seller videos were found for embedding in this manual.