SainSmart CR-10 Smart Pro

Official Creality CR-10 Smart Pro 3D Printer User Manual

Model: CR-10 Smart Pro
Brand: SainSmart

1. Introduction

This manual provides detailed instructions for the assembly, operation, maintenance, and troubleshooting of your Official Creality CR-10 Smart Pro 3D Printer. Please read this manual thoroughly before operating the printer to ensure proper use and to prevent damage.

The CR-10 Smart Pro is designed for high-quality 3D printing with features such as a large build volume, HD camera for real-time monitoring, automatic leveling, and a dual-gear direct extruder for a wide range of materials.

2. Safety Information

- Always operate the printer in a well-ventilated area.
- Keep the printer away from flammable materials and heat sources.
- Do not touch the nozzle or heated bed during operation as they reach high temperatures.
- Ensure the power supply voltage matches your local standard (e.g., 115V for US).
- Do not attempt to disassemble or modify the printer unless specifically instructed in this manual.
- Keep out of reach of children and pets.

3. Package Contents

Verify that all components are present and in good condition upon unpacking.

- Creality CR-10 Smart Pro 3D Printer (Main Unit)
- Power Cable
- Filament Spool Holder
- Tools and Accessories (e.g., wrenches, screwdrivers, spare nozzle)

- USB Cable
- SD Card with Sample Files and Software

4. Product Overview

Familiarize yourself with the main components of the CR-10 Smart Pro 3D Printer.



Figure 4.1: Overall view of the Creality CR-10 Smart Pro 3D Printer.



Figure 4.2: Exploded view showing key components: 1. Flexible PEI Bed, 2. Gantry Assembly, 3. Support Rods, 4. Extruder Assembly, 5. Touchscreen, 6. Filament Holder, 7. HD Camera.

Key Features:

- **Build Volume:** 300 x 300 x 400mm
- **Extruder:** All-metal dual-gear direct extruder, supporting temperatures up to 300°C. This design ensures consistent filament feeding and reduces clogging.



Figure 4.3: Detail of the all-metal dual-gear direct extruder.

- **Bed:** Flexible PEI magnetic spring steel sheet for excellent adhesion and easy print removal.



Figure 4.4: The flexible PEI build plate and bed leveling system.

- **Leveling:** CR-Touch auto bed-leveling and manual bed-leveling options.
- **Monitoring:** Equipped with a wide-angle HD camera and LED light for real-time monitoring and control via a mobile application.

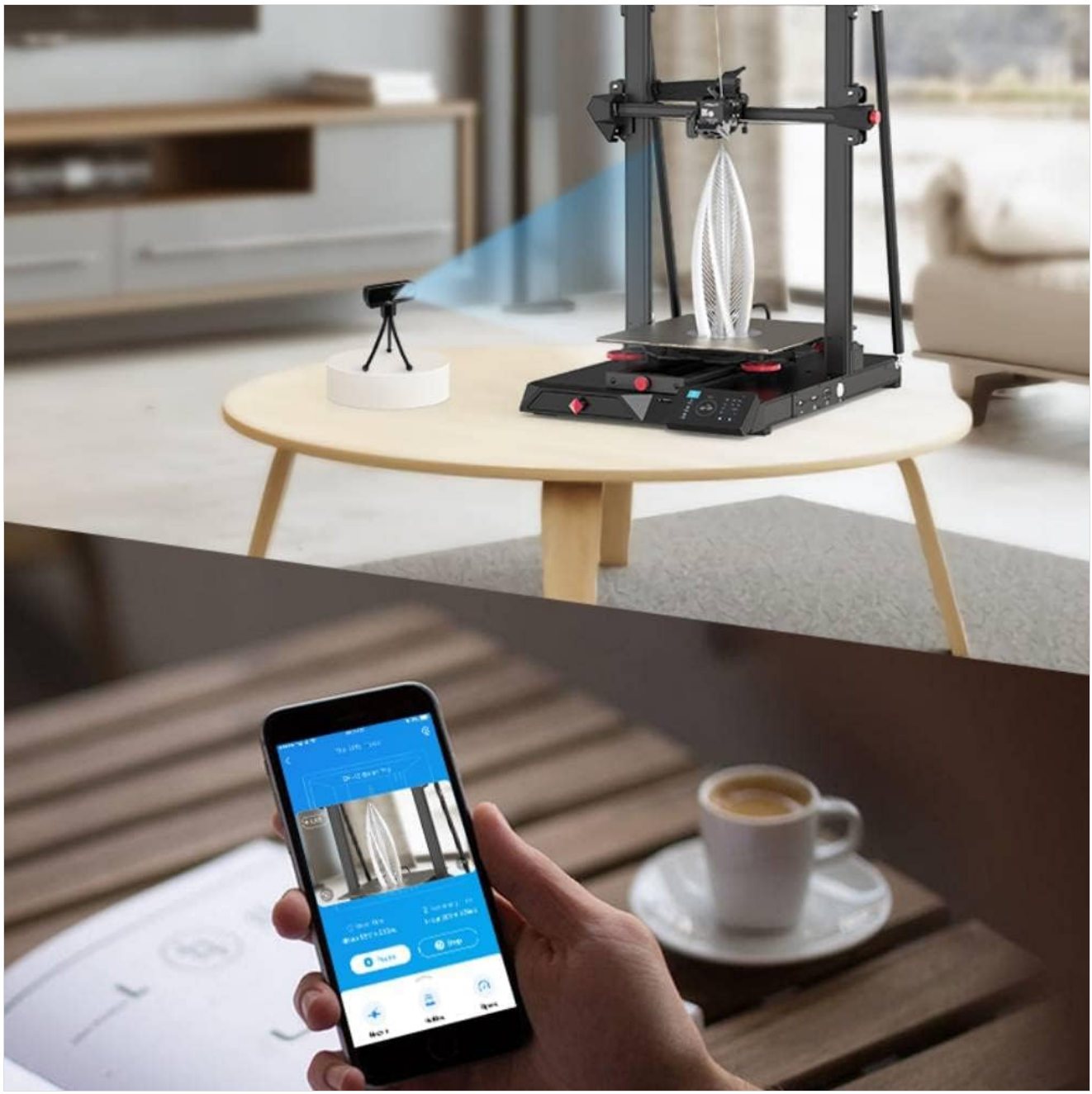


Figure 4.5: Real-time monitoring capability with the integrated HD camera.

- **Interface:** 4.3-inch responsive color touchscreen.



Figure 4.6: The intuitive 4.3-inch color touchscreen.

5. Setup Guide

5.1 Unpacking and Placement

1. Carefully remove all components from the packaging.
2. Place the printer on a stable, level surface in a well-ventilated area. Ensure there is enough space around the printer for operation and maintenance.

5.2 Assembly

1. **Attach the Gantry:** Secure the gantry assembly to the base unit using the provided screws.
2. **Install Support Rods:** Connect the support rods between the gantry and the base for added stability.
3. **Mount Filament Holder:** Attach the filament spool holder to the designated position on the gantry.
4. **Connect Cables:** Connect all necessary cables, including the power cable, motor cables, and endstop cables, ensuring they are securely fastened.

5.3 Initial Power-On and Voltage Check

1. Before plugging in, verify the voltage switch on the power supply unit is set to the correct voltage for your region (e.g., 115V for North America).
2. Plug the power cable into the printer and then into a grounded electrical outlet.
3. Turn on the power switch. The touchscreen should illuminate.

5.4 Bed Leveling (CR-Touch Auto-Leveling)

The CR-10 Smart Pro features CR-Touch auto-leveling for simplified bed calibration.

1. From the touchscreen menu, navigate to the 'Leveling' or 'Calibration' section.
2. Select 'Auto-Leveling' (CR-Touch). The printer will automatically probe multiple points on the build plate to create a mesh for compensation.
3. For optimal first layer adhesion, a manual fine-tuning of the Z-offset may be required after auto-leveling. Refer to the 'Operating Instructions' section for details.

6. Operating Instructions

6.1 Loading Filament

1. Place the filament spool onto the spool holder.
2. Preheat the nozzle to the recommended temperature for your filament type (e.g., 200°C for PLA).
3. Insert the filament into the extruder's intake hole.
4. Gently push the filament until it is gripped by the extruder gears. Continue pushing until molten filament extrudes from the nozzle.

6.2 Preparing a Print (Slicing)

Before printing, 3D models (STL, OBJ files) must be converted into G-code using slicing software (e.g., Creality Slicer, Cura, PrusaSlicer).

1. Open your preferred slicing software.
2. Load your 3D model.

3. Configure print settings such as layer height, infill density, print speed, and support structures. Ensure the correct printer profile (CR-10 Smart Pro) is selected.
4. Slice the model to generate the G-code file.
5. Save the G-code file to an SD card or transfer it via Wi-Fi if configured.

6.3 Starting a Print

1. Insert the SD card into the printer's card slot or ensure Wi-Fi connection is active.
2. On the touchscreen, navigate to 'Print' and select your G-code file.
3. Confirm the print. The printer will begin heating the nozzle and bed, then start the printing process.

6.4 Real-time Monitoring and Remote Control

The integrated HD camera allows for remote monitoring of your prints.

1. Download and install the Creality Cloud app on your smartphone or tablet.
2. Connect your printer to your Wi-Fi network via the touchscreen settings.
3. Follow the app's instructions to add and link your CR-10 Smart Pro printer.
4. Once linked, you can view the print progress, control basic printer functions (e.g., pause, stop), and adjust settings remotely.

7. Maintenance

Regular maintenance ensures the longevity and optimal performance of your 3D printer.

- **Clean the Nozzle:** Regularly clean any filament residue from the nozzle using a brass brush or needle.
- **Clean the Build Plate:** After each print, clean the PEI build plate with isopropyl alcohol to remove oils and residues, ensuring good adhesion for future prints.
- **Lubricate Moving Parts:** Periodically apply a small amount of lithium grease to the Z-axis lead screws and smooth rods to ensure smooth movement.
- **Check Belt Tension:** Ensure the X and Y axis belts are properly tensioned. They should be taut but not overly tight.
- **Inspect Cables:** Check all cables for wear or damage. Replace any damaged cables immediately.
- **Firmware Updates:** Check the official Creality website for the latest firmware updates to ensure your printer has the most current features and bug fixes.

8. Troubleshooting

This section addresses common issues you might encounter during operation.

Problem	Possible Cause	Solution
Print not sticking to bed	Improper bed leveling, dirty bed, incorrect bed temperature, Z-offset too high	Re-level the bed, clean the bed with isopropyl alcohol, adjust bed temperature in slicer, fine-tune Z-offset.
Filament not extruding	Nozzle clogged, filament tangled, incorrect nozzle temperature, extruder gears jammed	Clean or replace nozzle, untangle filament, increase nozzle temperature, clear extruder gears.

Problem	Possible Cause	Solution
Poor print quality (layer shifts, stringing)	Loose belts, incorrect print speed, retraction settings, worn nozzle	Check and tighten belts, reduce print speed, adjust retraction settings in slicer, replace nozzle.
Printer not connecting to Wi-Fi	Incorrect password, out of range, network issues	Double-check Wi-Fi password, move printer closer to router, restart router and printer.

9. Specifications

Feature	Specification
Product Dimensions	22.76 x 20.55 x 25.51 inches (578 x 522 x 648 mm)
Item Weight	36.9 pounds (16.7 kg)
Build Volume	300 x 300 x 400 mm
Extruder Type	All-metal Dual-Gear Direct Extruder
Max Nozzle Temperature	300°C
Build Surface	Flexible PEI Magnetic Spring Steel Sheet
Leveling Method	CR-Touch Automatic Leveling
Connectivity	SD Card, Wi-Fi
Display	4.3-inch Color Touchscreen
Monitoring	Built-in HD Camera with LED Light
Compatible Filaments	PLA, ABS, PETG, TPU, etc.
Power Consumption (On-mode)	350 watts

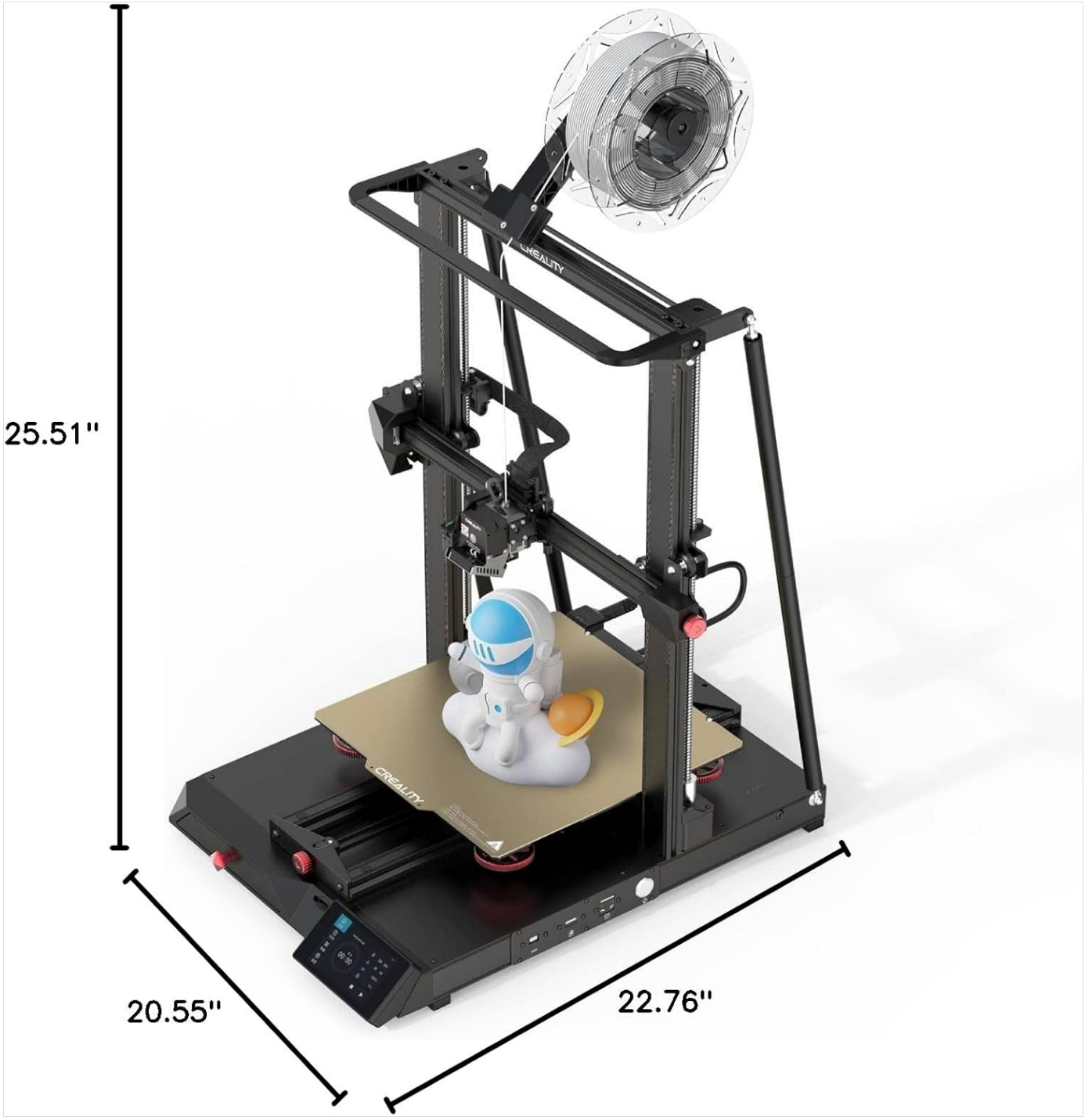


Figure 9.1: Product dimensions of the CR-10 Smart Pro.

10. Warranty and Support

The Creality CR-10 Smart Pro 3D Printer is manufactured by SainSmart. For warranty information and technical support, please refer to the official SainSmart website or contact their customer service directly.

It is recommended to register your product upon purchase to facilitate any future support requests.

For additional resources, including FAQs, firmware downloads, and community forums, visit the official Creality support pages.

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Details

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