

MD-F01 Filament Feeding Cabinet User Manual



V1.0

1. Product Overview

The MD-F01 Smart Dry Cabinet is an intelligent drying and filament management system designed specifically for 3D printing materials. Integrating temperature/humidity monitoring, auto-dehumidification, filament detection, automatic feeding/retracting, and auto-replenishment capabilities, this system effectively addresses filament moisture absorption, breakage, and supply interruptions, ensuring enhanced print quality and workflow efficiency.

2. Functional Features

2.1 Automatic Drying & Dehumidification

- **Real-time monitoring** of internal temperature and humidity.
- **Auto-dehumidification:** Adjusts heating and fan operations based on humidity levels.
- **Smart drying cycle:** Sequential phases (40min heating → 30min dehumidification → 10min reheating → 30min final dehumidification).

2.2 Filament Management

- **6 filament slots** (3 left, 3 right).
- **Filament presence detection** for each slot.
- **Weight monitoring:** Alerts when filament weight drops below preset thresholds.
- **Multi-distance feeding/retracting:** Supports short (50mm, 100mm, 500mm) and long-distance (3000mm) operations.

2.3 Auto-Replenishment

- Detects filament breaks during printing.

- Automatically switches to available spools.
- Prioritizes spools with sufficient weight.

2.4 Auto-Feeding

- Detects filament shortages in real time.
- Proactively feeds filament to the printer.

2.5 Smart Filament Switching

- Automated retraction and feeding.
- Success/failure detection with timeout protection.

2.6 Lighting Control

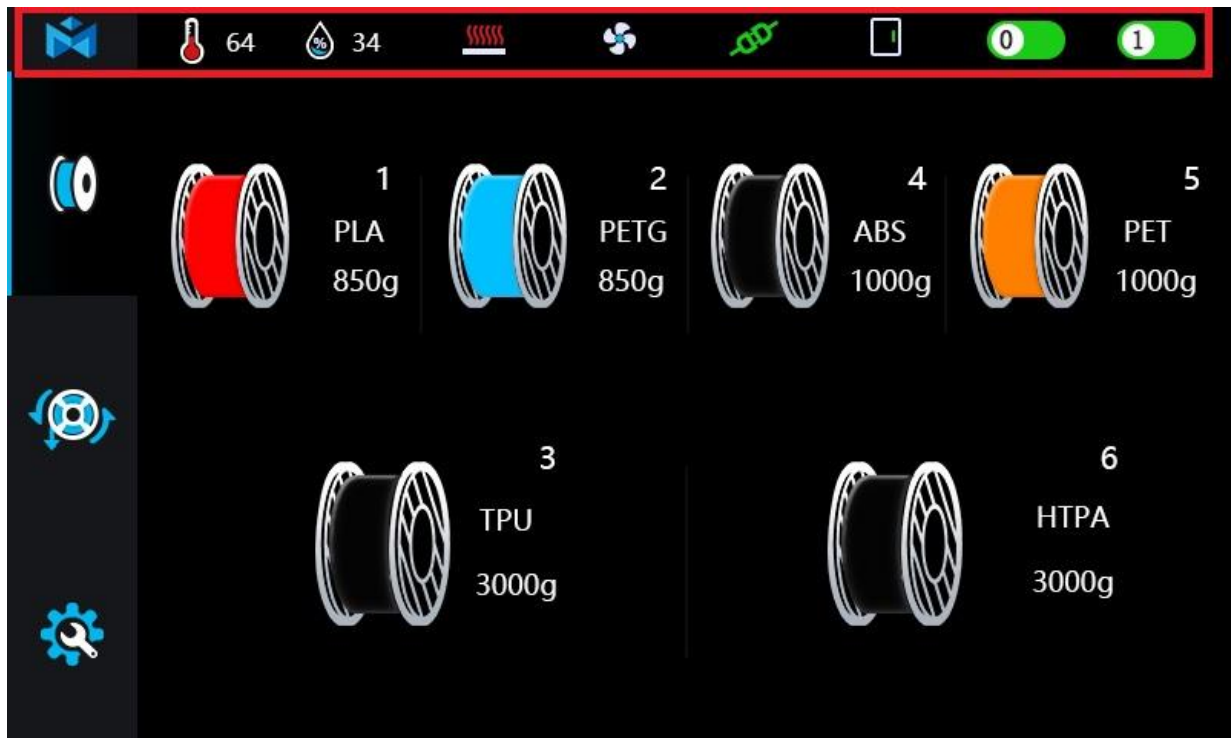
- **Auto on/off:** Activates when door opens/closes.
- Manual override via settings.

2.7 Alarm System

- Door-open alarm.
- Filament absence alarm.
- Low filament weight alarm.

3. Interface Guide

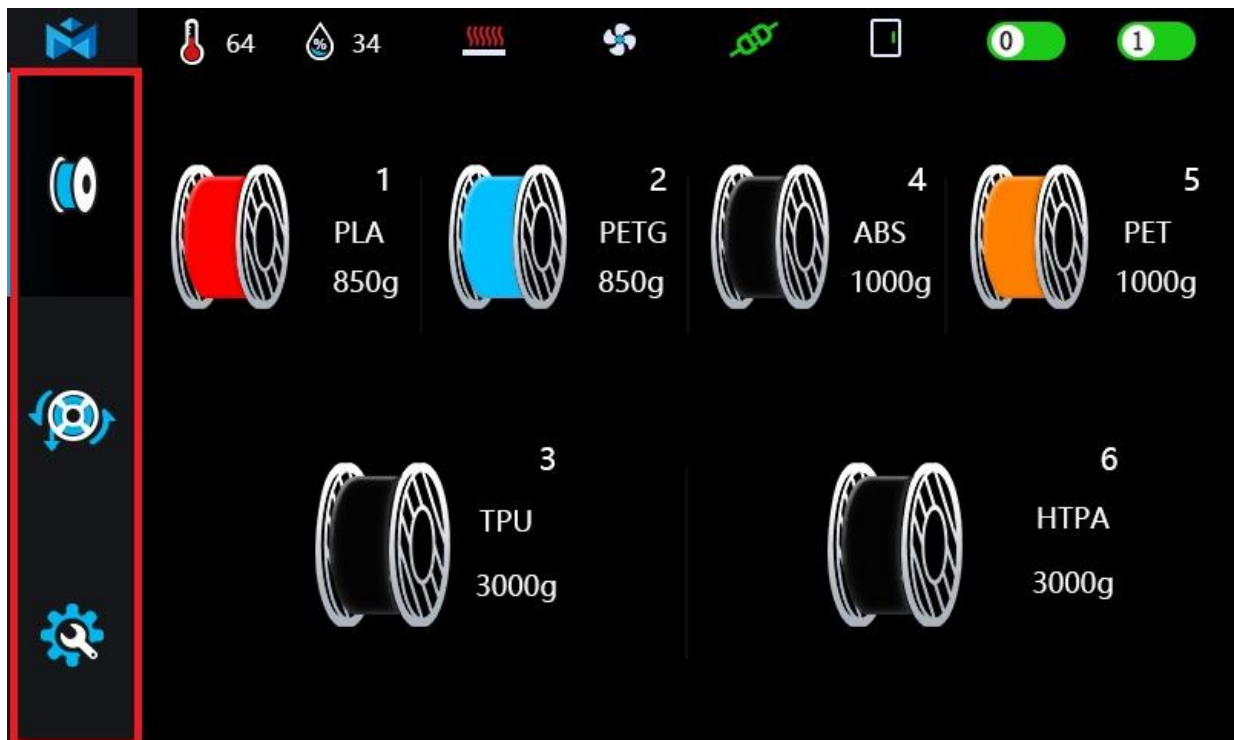
3.1 Status Bar



Displays:

- Mingda logo.
- Current temperature/humidity.
- Heating/fan status.
- Screen-mainboard connection status.
- Door status.
- Filament detection (left to right).

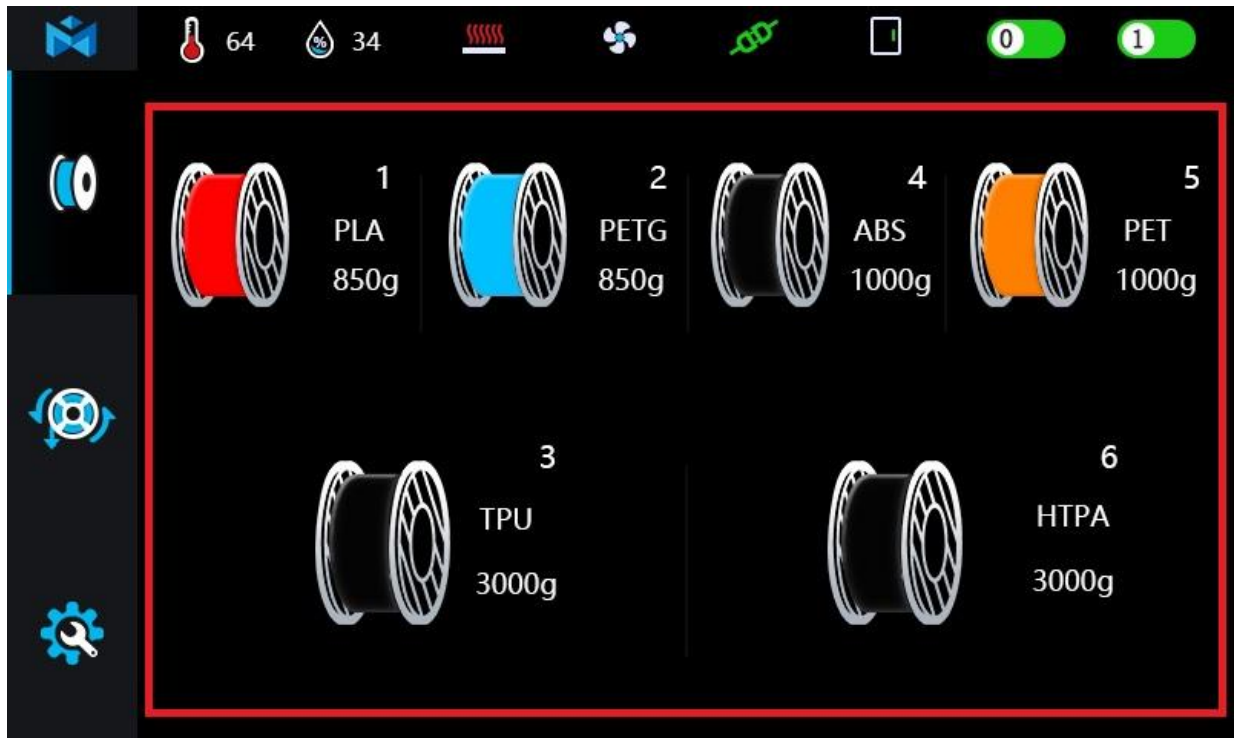
3.2 Tab Bar



Left-side tabs:

- Filament Management.
- Feeding Control.
- System Settings.

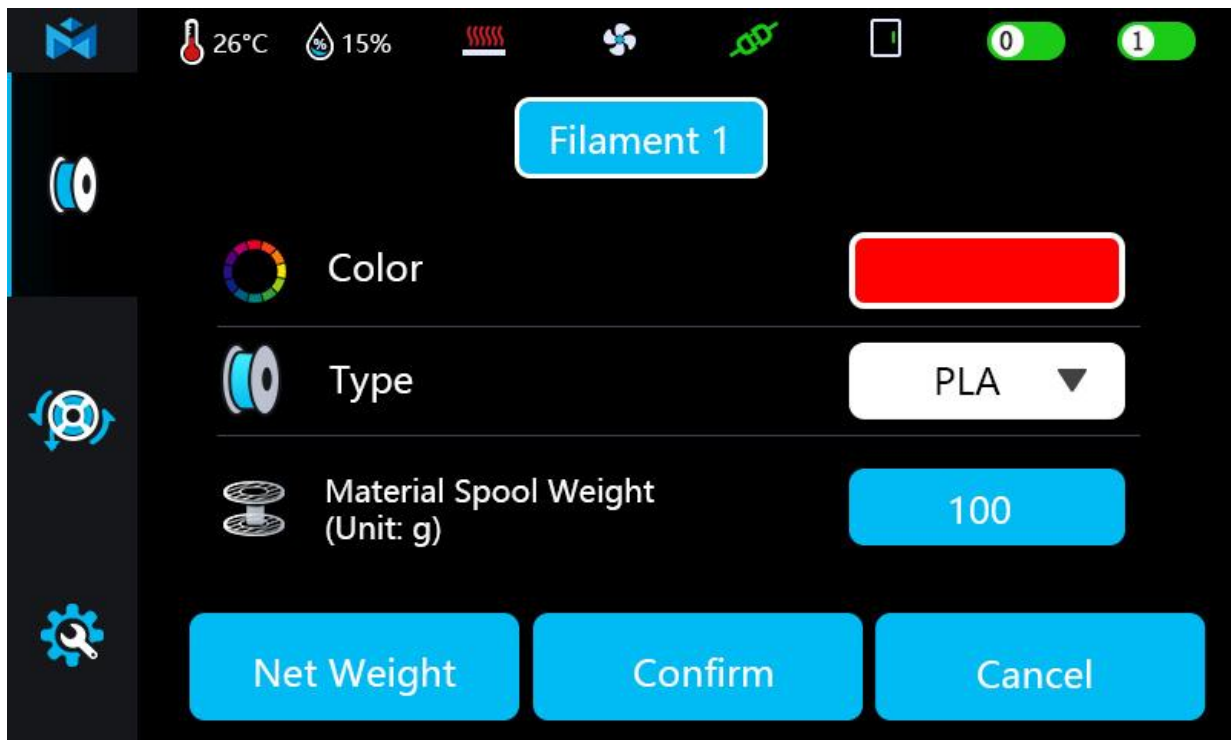
3.3 Filament Information Interface



Details include:

- Filament color.
- Material type (e.g., PLA).
- Weight.
- Slot ID (1-6).

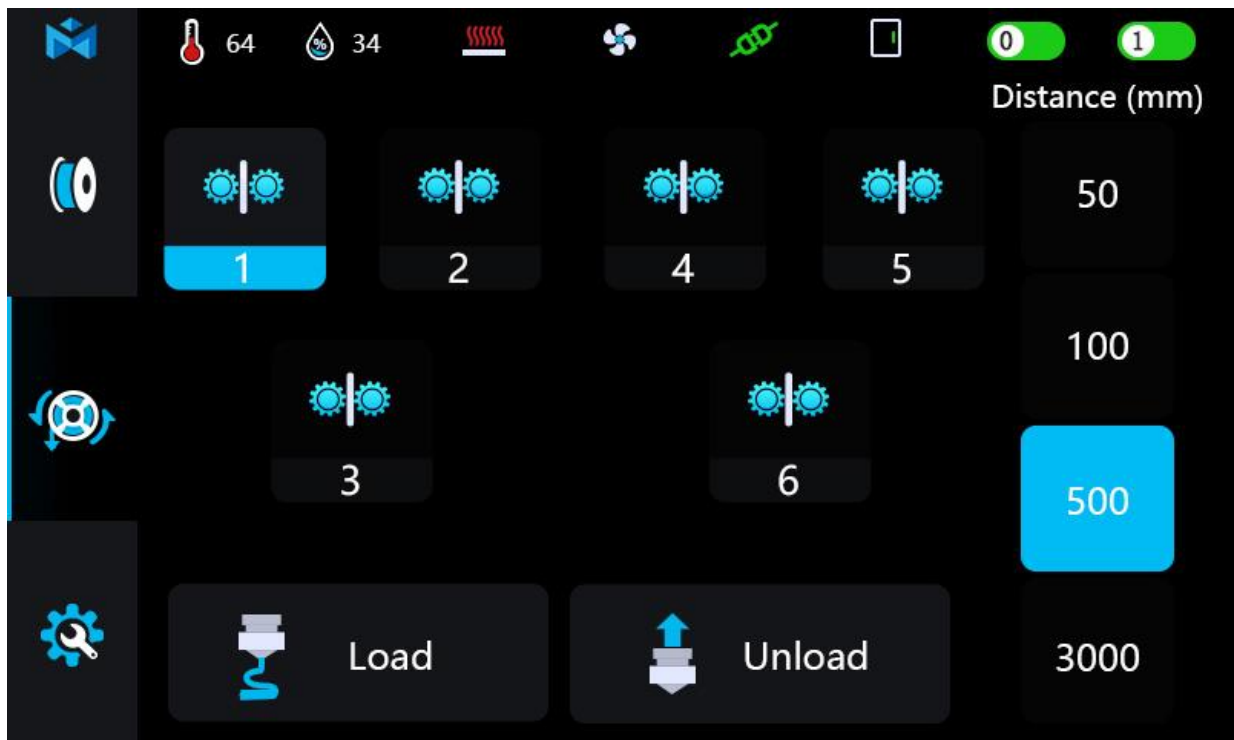
3.4 Filament Settings Interface



Adjustments:a. **Material type** (dropdown menu).b. **Spool weight** (numeric input).c. **Color selection** (color blocks).

- **Tare function:** Zero weight calibration.
- Swipe to switch between slot IDs.

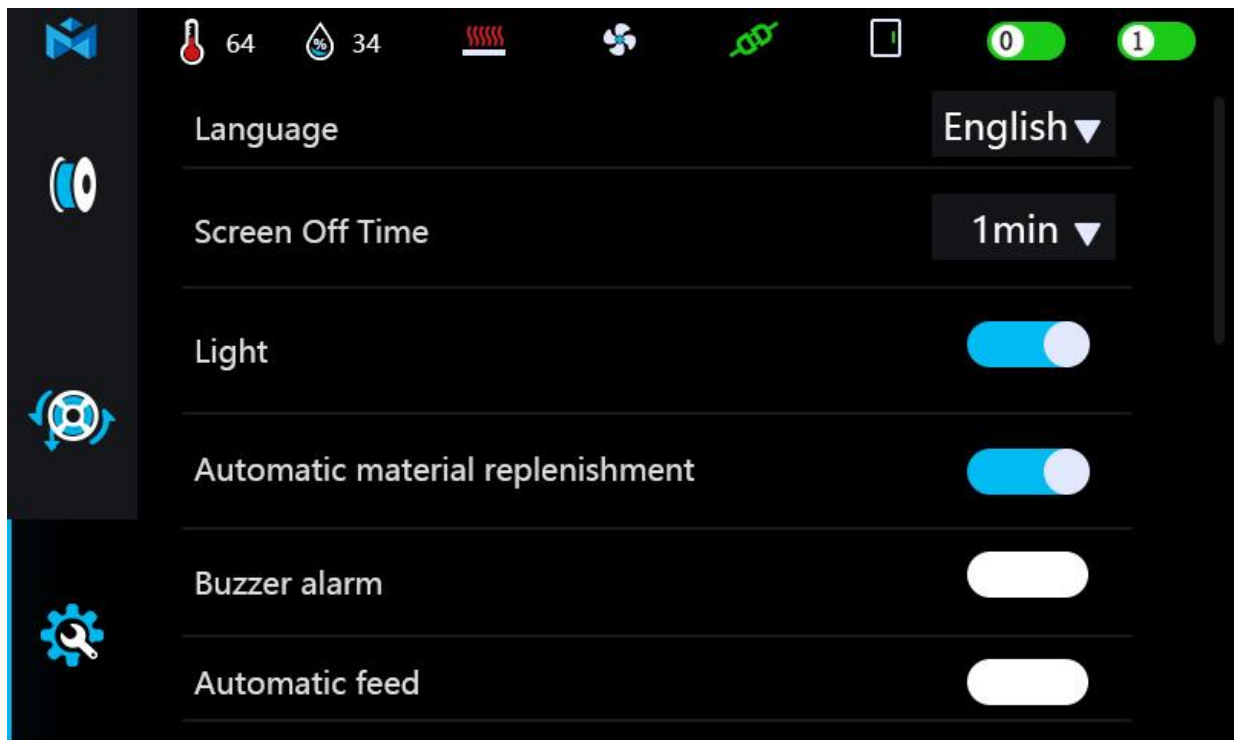
3.5 Feeding/Retracting Control



Functions:

- Feed/retract with adjustable distances.
- Switch between preset slot IDs (1–6).

3.6 System Settings



Configurable options:

- **Language** (English/Chinese).
- **Screen timeout**: Tap to wake, press knob to sleep.
- **Auto-feeding settings**.
- **Lighting control**.
- **Buzzer alarms**.
- **Heater function**.
- **Firmware version check**.

4. User Guide

4.1 Power-On & Initialization

1. Connect power; system auto-initializes.

2. Post-initialization status check.
3. Verify filament slot status/weight during first use.

4.2 Drying Function

- **Humidity > 20%:** Full drying cycle (40/30/10/30 mins).
- **15% < Humidity ≤ 20%:** Fan + heater activation.
- **Humidity ≤ 15%:** Idle mode. **Note:** Door must be closed for drying.

4.3 Feeding/Retracting Operations

Steps:

1. Disable auto-feeding in settings.
2. Select slot ID (1–6).
3. Choose distance (50mm–3000mm).
4. Start feed/retract. **Click reverse button to halt.**

Notes:

- Direction changes require motion stop.
- Occupied slots trigger auto-switching.
- Manual operations disabled during printing.

4.4 Auto-Replenishment

1. Enable feature.
2. System retries feeding or switches filaments upon breakage.
3. Alarms if unresolved after multiple attempts.

4.5 Auto-Feeding

1. Enable feature.
2. System detects shortages and feeds proactively.

4.6 Filament Switching

1. Select target slot and click "Feed".
2. If occupied, system executes retract-feed sequence.
3. Updates active slot post-switch.

Notes:

- Left slots (1–3) and right slots (4–6) are independent.
- **Cut filament** from nozzle before switching.
- Timeout protection included.

4.7 Lighting Control

- Auto on/off with door.
- Manual toggle via settings.

4.8 Alarm System

Monitors:

- Open door.
- Missing filament during printing.
- Low filament weight. Adjust buzzer volume in settings.

5. FAQs & Troubleshooting

5.1 System Unresponsive

- Check power/cable connections.
- Restart.

5.2 Poor Drying

- Ensure door closure.
- Verify heater/fan functionality.
- Inspect sensors.

5.3 Feeding Issues

- Clear jams/tangles.
- Check sensors and motors.

5.4 Auto-Replenishment Failure

- Confirm available spools/sufficient weight.
- Inspect sensors.

5.5 Weight Display Errors

- Calibrate scale.
- Ensure stable placement.
- Reboot.

6. Maintenance

6.1 Regular Cleaning

- Clean interior for dryness.
- Wipe sensors and scale surfaces.

6.2 Sensor Calibration

- Temp/humidity sensors: No calibration needed.
- Scale: Periodic calibration (refer to manual).

7. Safety Precautions

- Avoid contact with heated components.
- Do not use in humid environments.
- No disassembly/modification.
- Disconnect power during prolonged inactivity.
- Keep away from children.

8. Contact & Support

For assistance:

- Tech Support: (+86) 13530306290 (WhatsApp).
- Email: <support@3dmingda.com>.
- Website: <https://www.3dmingda.com>.

Thank you for choosing MD-F01. Happy printing!

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.