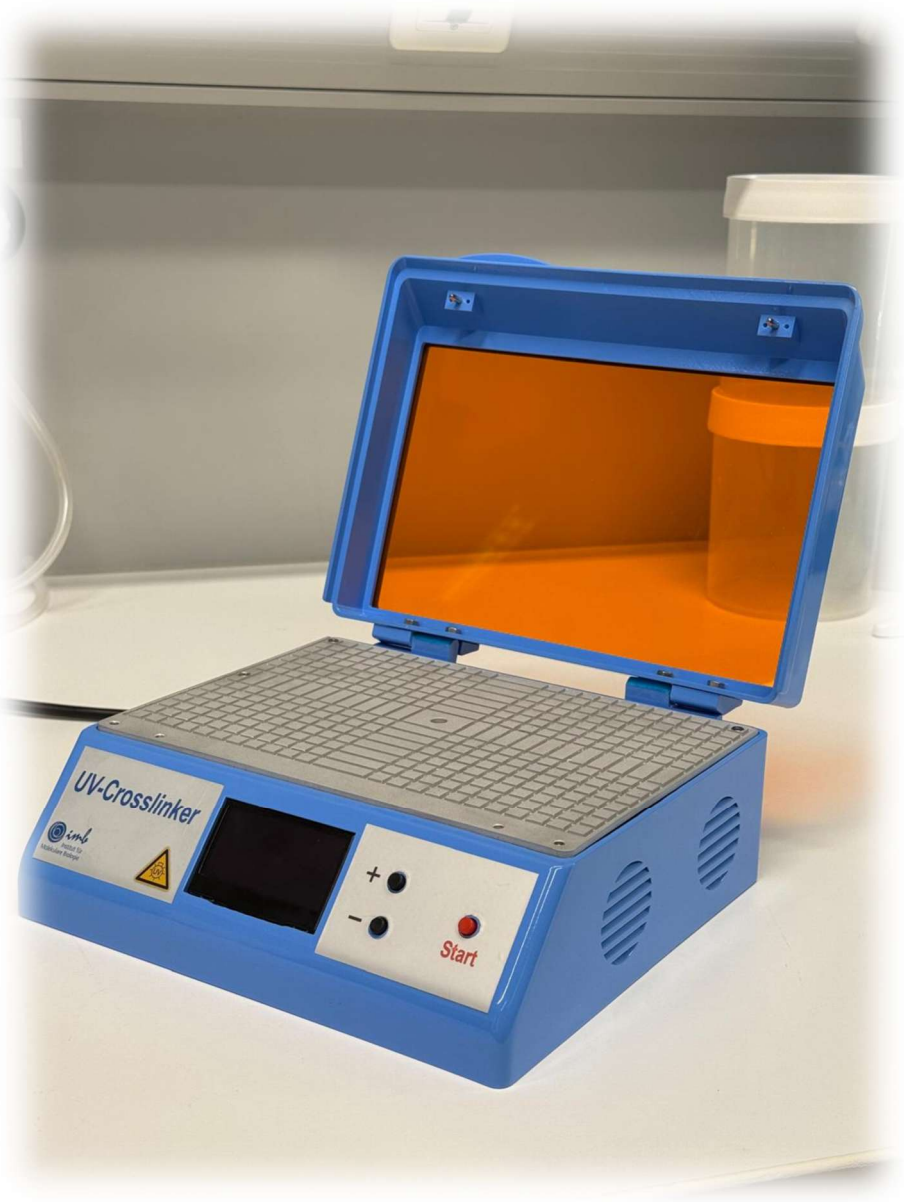
UV-Crosslinker



Operating Manual

Operating Manual: UV-Crosslinker Mini

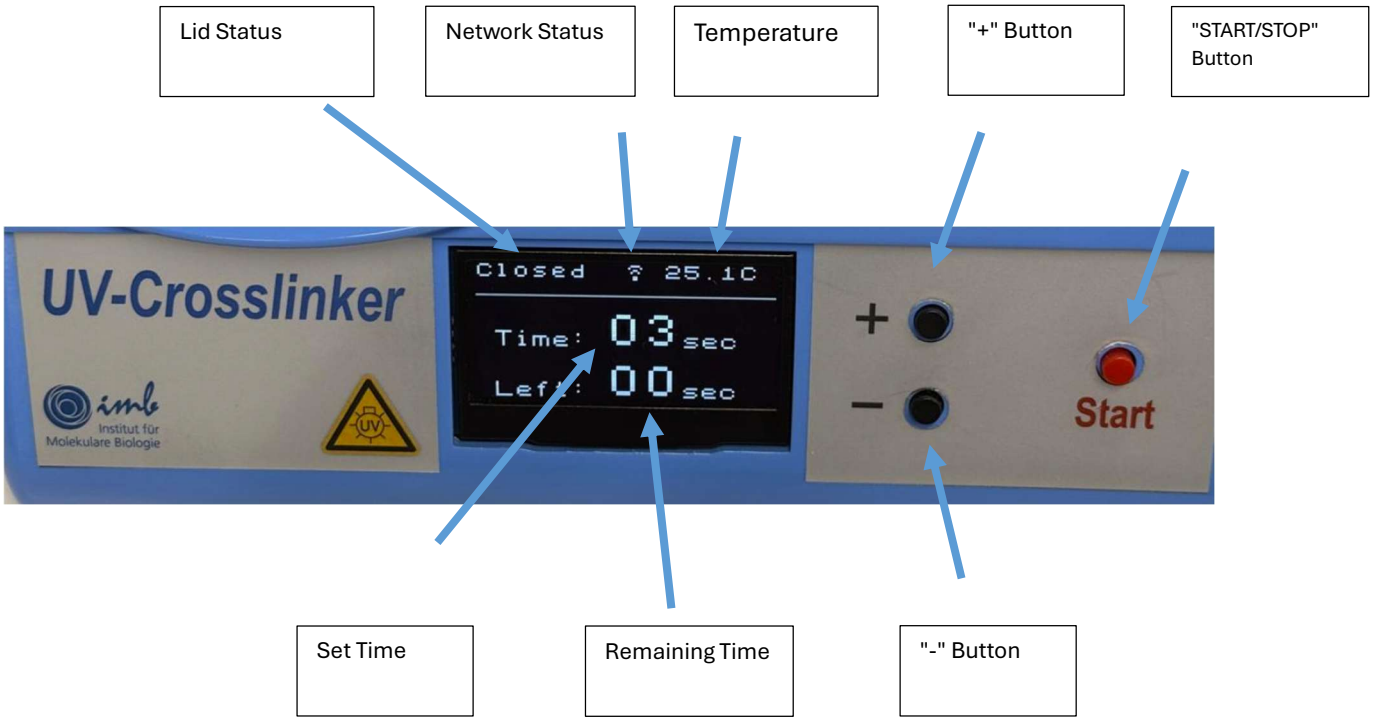
1. Introduction and Intended Use

The Crosslinker Mini is a specialized laboratory device for the precisely dosed ultraviolet irradiation of biological or chemical samples in standard 96-well microplates. The device features a high-intensity solid-state UV light source and a multi-level safety system (Safety Interlock) to protect the operator from UV radiation.

2. Technical Specifications

- Light source: Solid-state UV emitter (COB-LED, 20 mm), wavelength 365 nm.
- Radiation class: UVA.
- Optical power: 2850 mW (viewing angle 90°).
- Power supply: 230 V AC, power consumption 50 W.
- LED lifespan: Over 10,000 operating hours (active temperature regulation).
- Cooling: Active cooling via 2 microprocessor-controlled fans.
- Protective shield: UV-resistant acrylic glass with high absorption.
- Interfaces: Wi-Fi (WPA2), Access Point (AP) mode.
- Timer range: 1 to 60 seconds.

3. User Interface and Controls



The control panel consists of an OLED display and three function buttons:

- **"+" button:** Increases exposure time.
- **"-" button:** Decreases exposure time.
- **"START/STOP" button:** Starts the cycle or aborts it in an emergency.

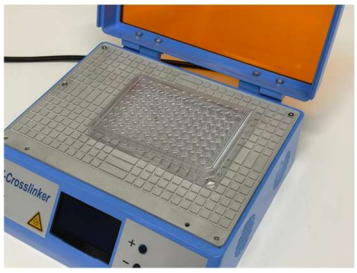
Display Indicators:

- **Lid Status:** Opened / Closed.
- **Temperature:** Current temperature of the heat sink (e.g., 25.5°C).
- **Network status:** WLAN connection indicator.
- **Time:** Set exposure time (permanently saved).
- **Left:** Remaining time of the current cycle.

Note: The display switches to sleep mode after 10 minutes of inactivity. Press any button to reactivate.

4. Operating Instructions

1. Place the 96-well plate in the working chamber.



2.Close the protective lid firmly (Display shows **Closed**).

3.Set the time (1–60 sec.) using **"+"** and **"-"**.

4.Press **START**. The UV-LED and cooling are activated; the countdown begins.

5.After the time elapses, the LED switches off automatically. An acoustic signal sounds periodically until the lid is opened.

6.Abort: Press **START** again during operation to stop the process immediately.

5. Safety Systems (Safety Interlock)

The device is secured at multiple levels against unintended UV emission:

- Software lock: The microcontroller stops the program immediately as soon as the lid is opened.
- Hardware lock: A microswitch physically interrupts the UV-LED circuit (Hard-stop).
- Safety monitoring: Continuous cooling starts if the light source temperature reaches 40.0 °C. If limit values are exceeded, radiation generation is completely blocked.

6. Software and Network Functions

6.1. Automatic Updates (OTA) With an active internet connection, the device checks for firmware updates in the background. During installation, the display shows: UPDATE do not turn off.

6.2. Service Mode (WLAN Configuration & Manual Update) To set up the WLAN manually:

1. Open the lid.
2. Press and hold the "+" and "-" buttons simultaneously for 3 seconds.
3. Connect your smartphone/PC to the WLAN CrosslinkerMini (Password: 12341234).
4. Open 192.168.4.1 in your browser.
5. Wi-Fi Config: Select your network (only WPA2 supported; no Enterprise networks like eduroam).
6. Update: Update files can be uploaded manually here. (Current versions can be found here: https://www.imb.de/about-imb/administration/e-lab)

7. Maintenance and Care

- The working chamber and acrylic glass may only be cleaned with a soft cloth and 70% ethanol.
- Do not use abrasives or aggressive organic solvents (risk of clouding the UV protection).
- Store the device in a dry environment at an ambient temperature of +10 °C to +35 °C.

8. Certification

The device complies with the EU Directives for Low Voltage and Electromagnetic Compatibility and bears the CE mark. Electrical safety has been tested according to DGUV Regulation 3.

9. Manufacturer Information

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