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› PEMENOL DIY Hourglass Timer Soldering Project Kit (Model US-004-22) Instruction Manual

PEMENOL US-004-22

PEMENOL DIY Hourglass Timer Soldering Project Kit (Model US-004-22) Instruction Manual

1. INTRODUCTION

This manual provides detailed instructions for assembling and operating your PEMENOL DIY Hourglass Timer Soldering Project Kit, model US-004-22. This kit is designed to offer a hands-on electronics learning experience, resulting in a functional LED hourglass timer with adjustable countdown features. It is suitable for users with some familiarity with electronics or those working with guidance in learning environments.

2. WHAT'S INCLUDED

Before beginning assembly, please verify that all components listed below are present in your kit. Refer to the image for a visual representation of the included parts.

Elektronischer Sanduhr löten lernen set



Image 2.1: Overview of all components included in the kit, such as PCBs, LEDs, resistors, integrated circuits, buttons, and the USB cable.

- Main Printed Circuit Boards (PCBs)
- LED Matrix Displays
- Resistors and Capacitors
- Integrated Circuits (ICs) and Sockets
- Control Buttons (SET, SAVE, +, -)
- Power Switch
- Optional Buzzer
- USB Power Cable
- Acrylic Case Panels
- Screws and Standoffs
- Battery Holder (for CR2032 battery, battery not included)

3. ASSEMBLY INSTRUCTIONS

This kit requires soldering. Basic soldering tools (soldering iron, solder, desoldering wick/pump, safety glasses) are recommended. Follow the instructions carefully, paying attention to component polarity and placement.

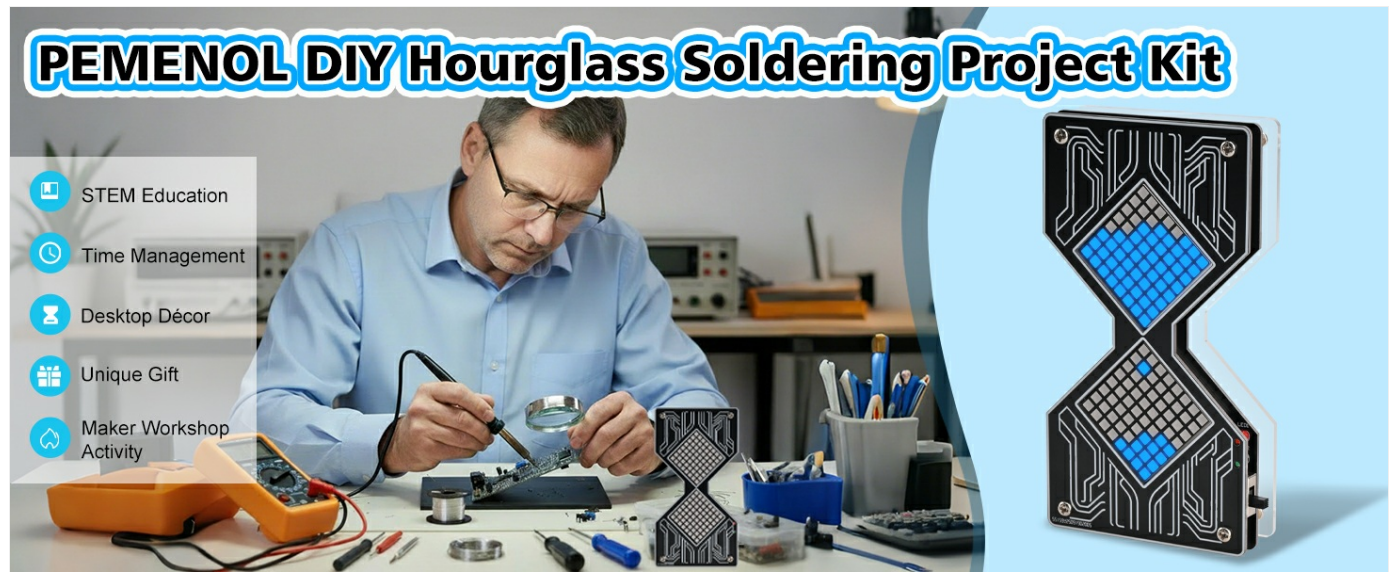


Image 3.1: An individual engaged in the soldering process for the DIY Hourglass Timer kit.

3.1 Soldering Components

1. **Identify Components:** Match each component from the kit to its corresponding label on the PCB. Pay close attention to values for resistors and capacitors, and polarity for diodes, LEDs, and ICs.
2. **Solder Small Components First:** Begin by soldering smaller components like resistors, diodes, and IC sockets. Ensure they are flush with the PCB before soldering.
3. **Solder Larger Components:** Proceed to solder larger components such as the LED matrix displays, buttons, power switch, and buzzer. Ensure the LED matrices are oriented correctly.
4. **Connect Power Interface:** Solder the USB power interface and battery holder.

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Video 3.1: A demonstration of the assembly and soldering process for the DIY Hourglass Timer Kit.

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Video 3.2: Detailed steps for soldering the components of the Hourglass Soldering Kit.

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Video 3.3: A guide to assembling the Countdown Timer Soldering Kit, including component placement and soldering techniques.

3.2 Assembling the Case

1. **Attach Standoffs:** Secure the brass standoffs to the main PCB using screws.
2. **Mount Acrylic Panels:** Carefully align and attach the acrylic top and bottom panels to the standoffs using the remaining screws. Ensure all connections are secure but do not overtighten.

4. SETUP

Once assembled, the hourglass timer can be powered via USB or a CR2032 battery (not included).

4.1 Powering the Device

- **USB Power:** Connect the provided USB cable to the USB-C port on the side of the device and to a 5V USB power source (e.g., computer, USB wall adapter).
- **Battery Power:** Insert a CR2032 coin cell battery into the battery holder on the back of the PCB, ensuring correct polarity (+ side up).



Image 4.1: The USB power interface and the power switch for the device.

4.2 Initial Power On

Slide the power switch to the 'ON' position. The LED display should illuminate, indicating the device is ready for use.

5. OPERATING INSTRUCTIONS

The PEMENOL Hourglass Timer features adjustable countdown, flip interaction, and an optional buzzer.

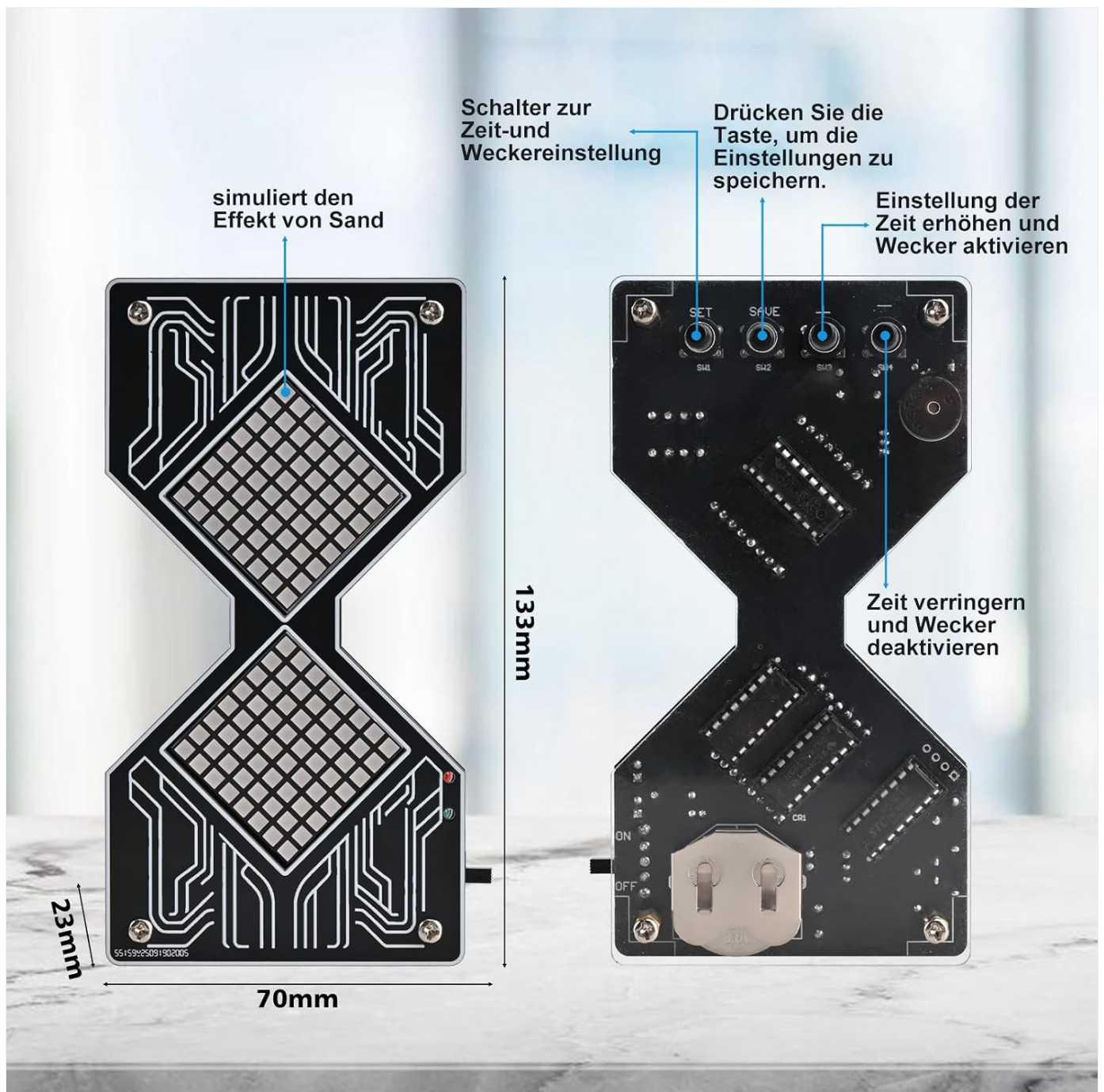


Image 5.1: Side view illustrating the control buttons: SET, SAVE, +, and - for time and alarm settings.



Image 5.2: Close-up of the SET, SAVE, +, and - buttons used for timer configuration.

5.1 Setting the Countdown Timer (1-99 Minutes)

1. **Enter Setting Mode:** Press the **SET** button. The display will show the current set time.
2. **Adjust Time:** Use the **+** and **-** buttons to adjust the countdown duration from 1 to 99 minutes.

3. **Save Setting:** Press the **SAVE** button to confirm and store your desired time.
4. **Start Timer:** After saving, the hourglass will automatically start the countdown.

5.2 Flip Interaction

The device is designed to simulate a traditional hourglass. If you flip the device upside down during a countdown, the LED 'sand' will visually reverse direction, but the timer will continue its countdown without resetting. This provides a continuous and engaging visual experience.

Was ist im Paket enthalten?

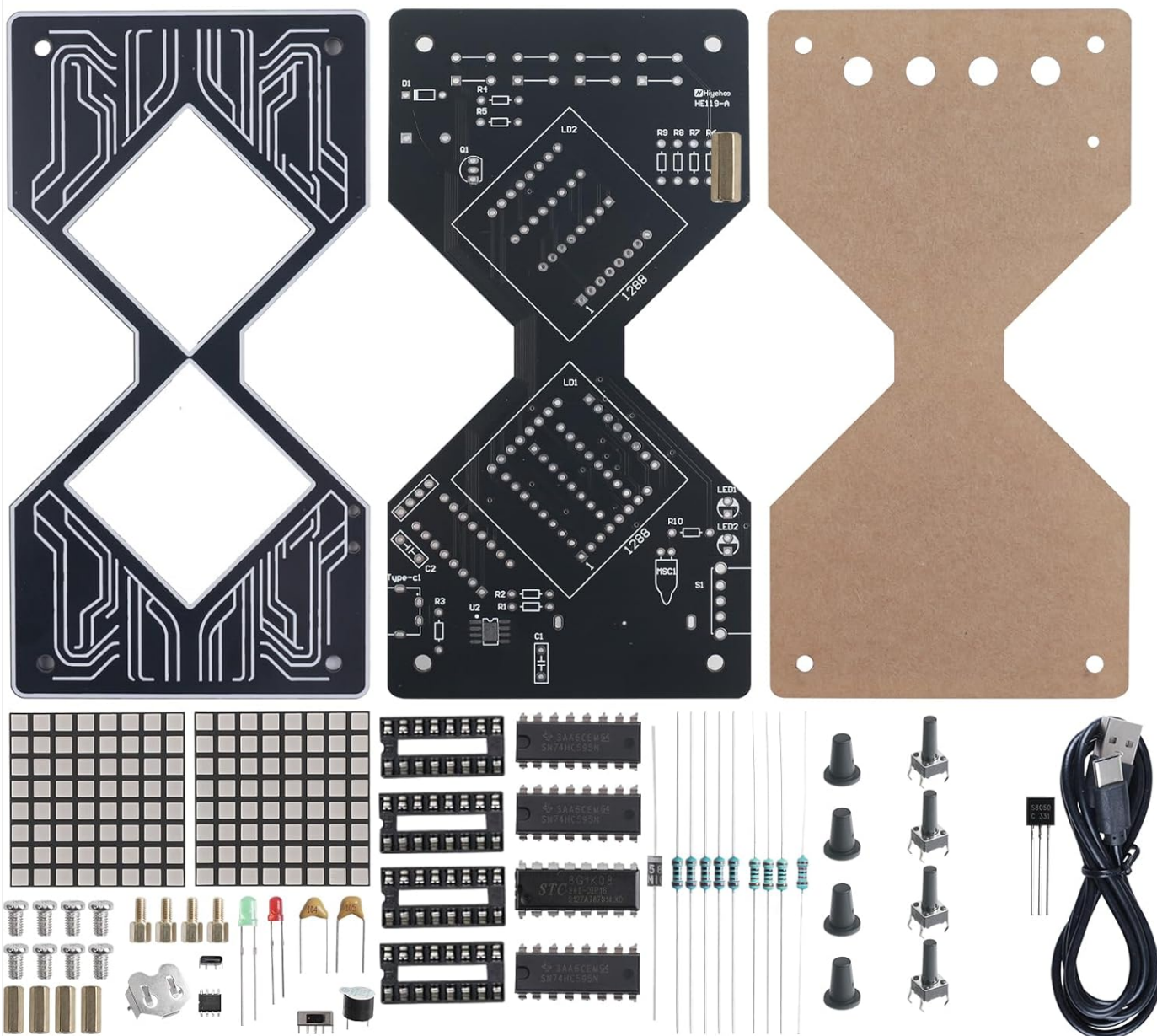


Image 5.3: Operational flow diagram illustrating how to set the time, start the timer, and how the timer continues when the device is flipped.

5.3 Optional Buzzer Control

The kit includes an optional buzzer that sounds when the countdown ends. You can control its volume or mute it:

- **Adjust Volume/Mute:** While the timer is running or after it has completed, press the **SET** button again to cycle through buzzer volume levels or to mute it. The display may indicate the current buzzer status.

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6. MAINTENANCE

To ensure the longevity and proper functioning of your PEMENOL Hourglass Timer, follow these simple maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to gently wipe the acrylic case and LED display. Avoid abrasive cleaners or solvents that could damage the plastic or electronic components.
- **Battery Replacement:** If using battery power and the display dims or functions erratically, replace the CR2032 battery. Ensure the device is powered off before replacing the battery.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.
- **Handling:** Handle the device with care to avoid dropping it or subjecting it to strong impacts, which could damage the soldered connections or acrylic case.

7. TROUBLESHOOTING

If you encounter issues with your hourglass timer, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
Device does not power on.	No power, loose connection, faulty switch.	Check USB cable connection or battery. Ensure power switch is ON. Inspect soldered connections for power input.
LEDs are dim or uneven.	Low battery, poor solder joint on LEDs.	Replace battery or use USB power. Inspect LED solder joints and re-solder if necessary.
Timer does not count down.	Incorrect setting, software issue, faulty button.	Ensure time is set and saved correctly. Re-check solder joints for control buttons and ICs.
Buzzer does not sound.	Buzzer muted, faulty buzzer, poor solder joint.	Press SET button to adjust buzzer volume. Inspect buzzer component and its solder joints.

If these steps do not resolve the issue, please contact PEMENOL customer support for further assistance.

8. SPECIFICATIONS

- **Model Number:** US-004-22
- **Brand:** PEMENOL
- **Countdown Range:** 1-99 minutes
- **Display Type:** LED Matrix
- **Power Source:** USB (5V) or CR2032 Battery (not included)
- **Material:** Plastic (case)
- **Included Components:** PCBs, LEDs, Resistors, ICs, Buttons, Buzzer, USB cable, Acrylic case, Screws
- **Smart Home Compatibility:** Not Smart Home Compatible

9. WARRANTY AND SUPPORT

PEMENOL is committed to providing quality products. While specific warranty details are not included in this manual, please retain your proof of purchase. For any questions, technical support, or assistance with your kit, please contact

PEMENOL customer service through the retailer where you purchased the product or visit the official PEMENOL website for contact information.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question