Manuals+
Q & A | Deep Search | Upload

MUXWELL HU-058M

MUXWELL DIY Digital Alarm Clock Soldering Kit - Model HU-058M

Instruction Manual

1. Introduction

This manual provides detailed instructions for the assembly, operation, and maintenance of your MUXWELL DIY Digital Alarm Clock Soldering Kit, Model HU-058M. This kit is designed for individuals interested in electronics and soldering, offering a practical project to develop skills while creating a functional digital alarm clock with customizable RGB display features.
The finished clock displays time, date, temperature, and day of the week, with options for 12/24-hour format, multiple alarm settings, and various RGB color modes. Please read all instructions carefully before beginning assembly.

2. Safety Precautions

- Always work in a well-ventilated area to avoid inhaling solder fumes.
- Wear appropriate eye protection (safety glasses) when soldering.
- Ensure your soldering iron is placed in a safe holder when not in use and is turned off when unattended.
- Avoid touching the hot tip of the soldering iron.
- Keep flammable materials away from your soldering workstation.
- Wash hands thoroughly after handling solder, especially lead-based solder.
- Handle electronic components carefully to prevent damage from static electricity.

3. Package Contents and Required Tools

3.1. Package Contents

Verify that all components listed below are present in your kit. Refer to the image for visual identification.

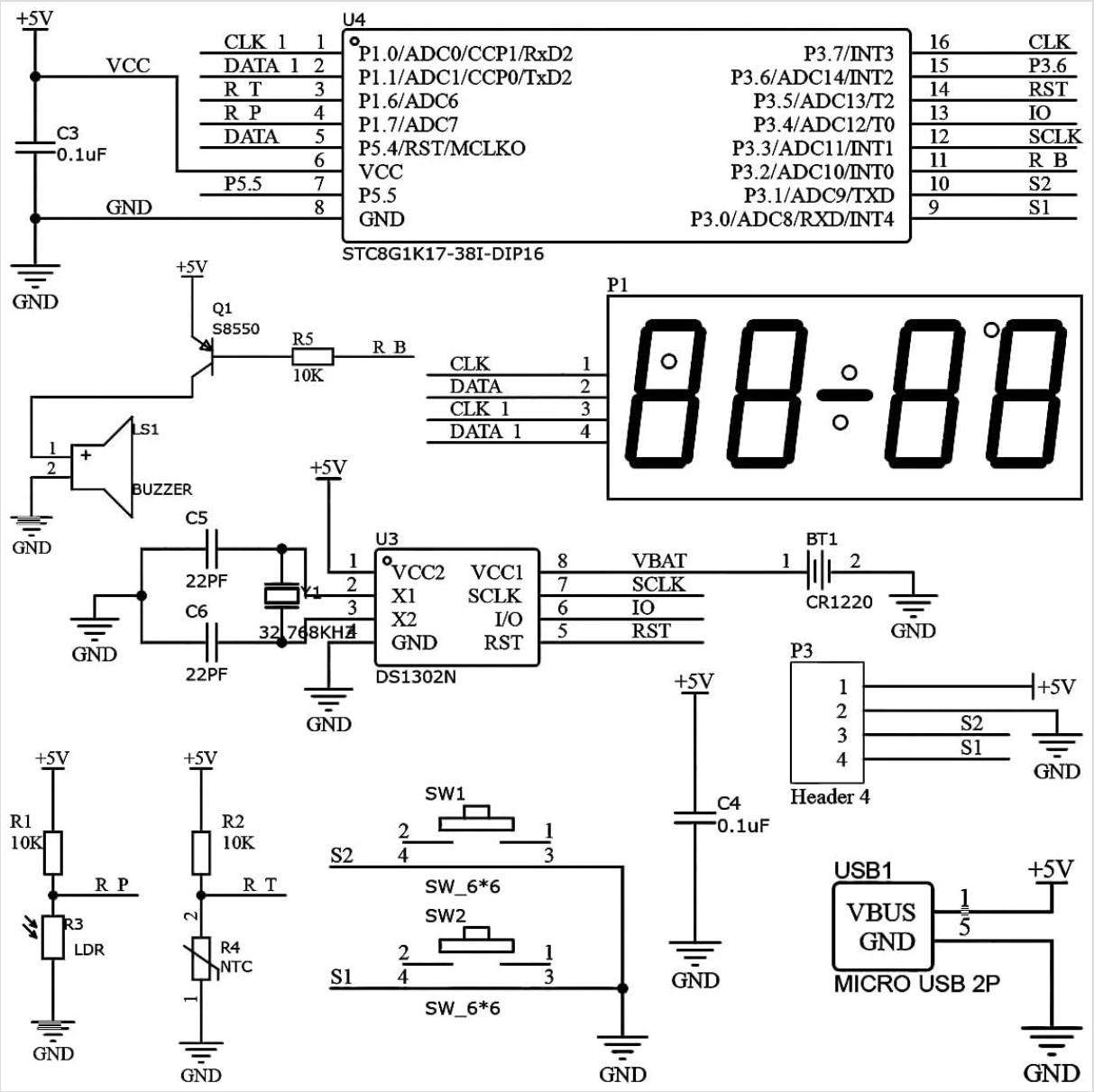


Image: All components included in the MUXWELL DIY Digital Alarm Clock kit, including the main PCB, display casing, buttons, resistors, capacitors, ICs, buzzer, sensors, USB cable, and screwdriver.

- Main Printed Circuit Board (PCB)
- Purple Plastic Casing (Front, Back, Sides)
- 4-Digit LED Display Module (pre-soldered to PCB)
- Micro USB Power Cable
- Small Screwdriver
- Various Electronic Components: Resistors, Capacitors, Diodes, Transistors, IC Sockets, Integrated Circuits (ICs), Buttons (SW1, SW2), Buzzer, Temperature Sensor (NTC), Photosensitive Sensor (LDR), 32.768KHz Crystal, CR1220 Battery Holder, CR1220 Battery (not always included, check packaging).
- Mounting Hardware (screws, standoffs)

3.2. Required Tools (Not Included)

- Soldering Iron with fine tip
- Solder (preferably lead-free for safety)
- Solder Wick or Solder Pump (for desoldering mistakes)

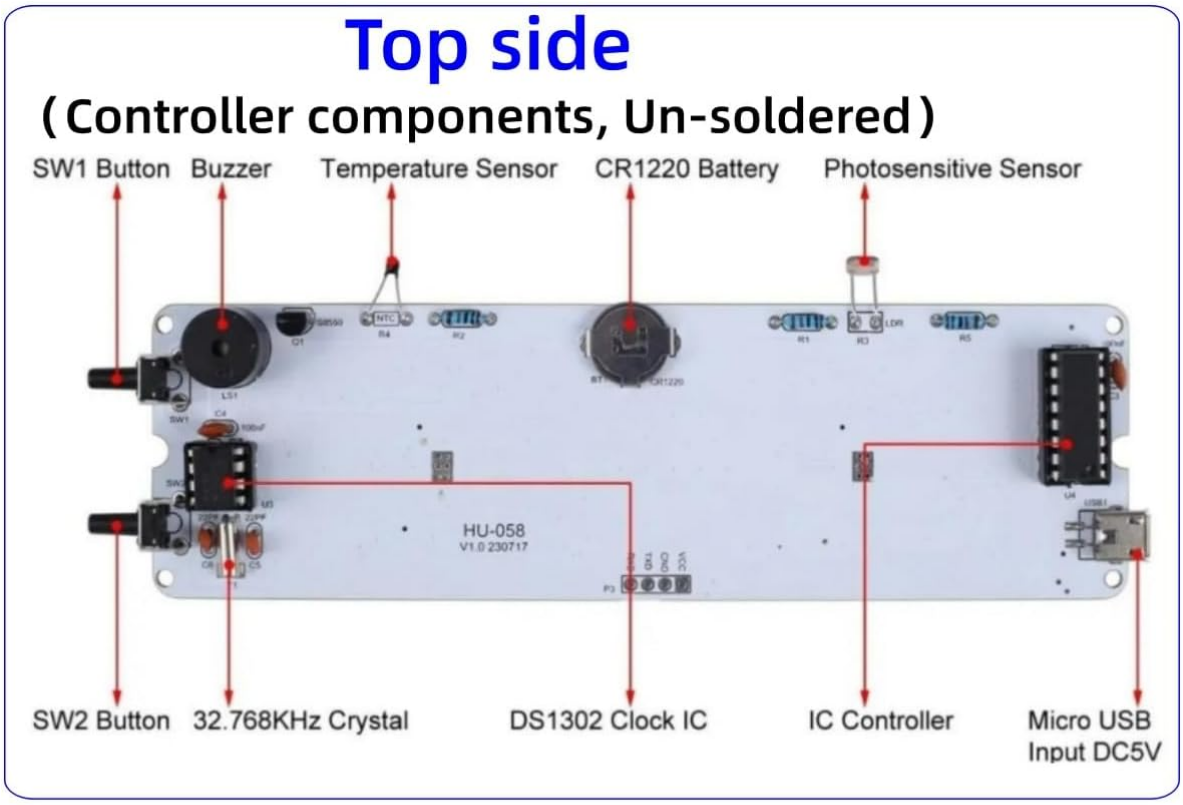
- Wire Cutters/Flush Cutters
- Needle-nose Pliers
- Multimeter (optional, for testing connections)

4. Assembly Instructions

Follow these steps carefully to assemble your digital alarm clock. Refer to the component identification images and schematic diagram as needed.

4.1. Printed Circuit Board (PCB) Overview

The main PCB has components pre-soldered on the bottom side (LED driver and LEDs) and requires soldering on the top side (controller components).



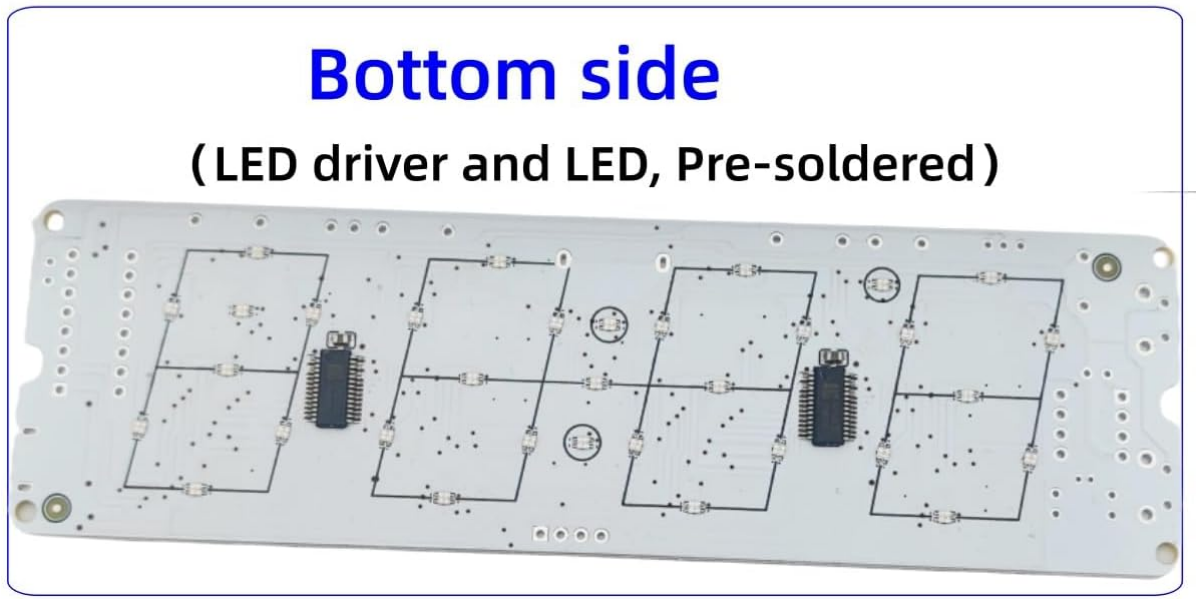


Image: Top and bottom sides of the PCB. The bottom side shows pre-soldered LED drivers and LEDs. The top side indicates locations for the controller components, buttons, sensors, and ICs.

4.2. Soldering Components to the PCB

It is generally recommended to solder components from lowest height to highest height. Pay close attention to component polarity where applicable.

1. **Resistors:** Solder all resistors (e.g., 10KΩ, 220Ω). Resistors are not polarized.
2. **Capacitors:** Solder ceramic capacitors (e.g., 0.1uF, 22pF). These are generally not polarized. Electrolytic capacitors (if present) are polarized; ensure the negative stripe aligns with the marking on the PCB.
3. **Diodes/Transistors:** Solder any diodes or transistors. Pay close attention to their orientation (e.g., cathode band on diodes, flat side on transistors).
4. **IC Sockets:** Solder the IC sockets. Ensure the notch on the socket aligns with the notch marking on the PCB. This is crucial for correct IC insertion later.
5. **32.768KHz Crystal:** Solder the crystal oscillator.
6. **Buttons (SW1, SW2):** Solder the push buttons.
7. **Buzzer:** Solder the buzzer. Note any polarity markings if present.
8. **Temperature Sensor (NTC) and Photosensitive Sensor (LDR):** Solder these sensors. Their leads may be long; trim them to fit neatly within the casing.
9. **CR1220 Battery Holder:** Solder the battery holder. A user review noted that the solder mask might be slightly higher than the pad for the battery connection; it is a good idea to build up a small amount of solder on this pad to ensure good contact.
10. **Micro USB Input:** Solder the Micro USB connector.

4.3. Inserting Integrated Circuits (ICs)

After all soldering is complete and the PCB has cooled, carefully insert the ICs into their respective sockets. Ensure the notch on the IC aligns with the notch on the socket and the PCB. Gently press down until the IC is fully seated.

4.4. Casing Assembly

1. Place the assembled PCB into the bottom half of the purple plastic casing.
2. Align the buttons and sensors with their corresponding holes in the casing.
3. Secure the PCB to the casing using the provided screws and standoffs. Be careful not to overtighten, as some users have reported that screw holes near the edges of the board can crack.
4. Attach the front display cover and the top half of the casing. Ensure all parts fit snugly.

5. Initial Setup and Operation

5.1. Powering On

Connect the Micro USB cable to the clock's Micro USB port and plug the other end into a 5V USB power adapter (not included) or a computer USB port. The clock should power on and display the time.
Insert the CR1220 battery into its holder. This battery provides backup power for timekeeping during power outages, ensuring the clock retains its settings.

Image: The fully assembled MUXWELL Digital Alarm Clock, powered on and displaying time with RGB digits.

5.2. Basic Functions and Settings

The clock features 3 alarms, temperature/date display, 4 levels of brightness, RGB color modes, 4 alarm music options, 12/24-hour format, power-off memory, and time calibration.

Image: Visual representation of the clock's main features, including multiple alarms, temperature/date display, brightness control, RGB colors, and power-off memory.

5.3. Setting Time and Date

Use the SW1 and SW2 buttons (typically located on the top or side of the clock) to navigate through settings and adjust values. Specific button functions may vary slightly; refer to the detailed instructions provided with your kit for precise button mapping.

- **Entering Settings Mode:** Typically, a long press of one of the buttons (e.g., SW1) will enter the settings menu.
- **Navigating Options:** Short presses of the same button may cycle through different settings (Time, Date, Alarm 1, Alarm 2, etc.).
- **Adjusting Values:** The other button (e.g., SW2) is usually used to increment or decrement values.

- **Saving Settings:** A long press or a period of inactivity will typically save the current setting and exit the settings mode.

5.4. Alarm Function

The clock supports up to 3 independent alarms. Set the desired alarm time and select an alarm music option (4 available). When an alarm triggers, the buzzer will sound. Press any button to snooze or turn off the alarm.

5.5. RGB Color Modes

Customize the display's appearance with various RGB color modes. Cycle through these modes using a dedicated button press (refer to your kit's specific instructions for button assignment).

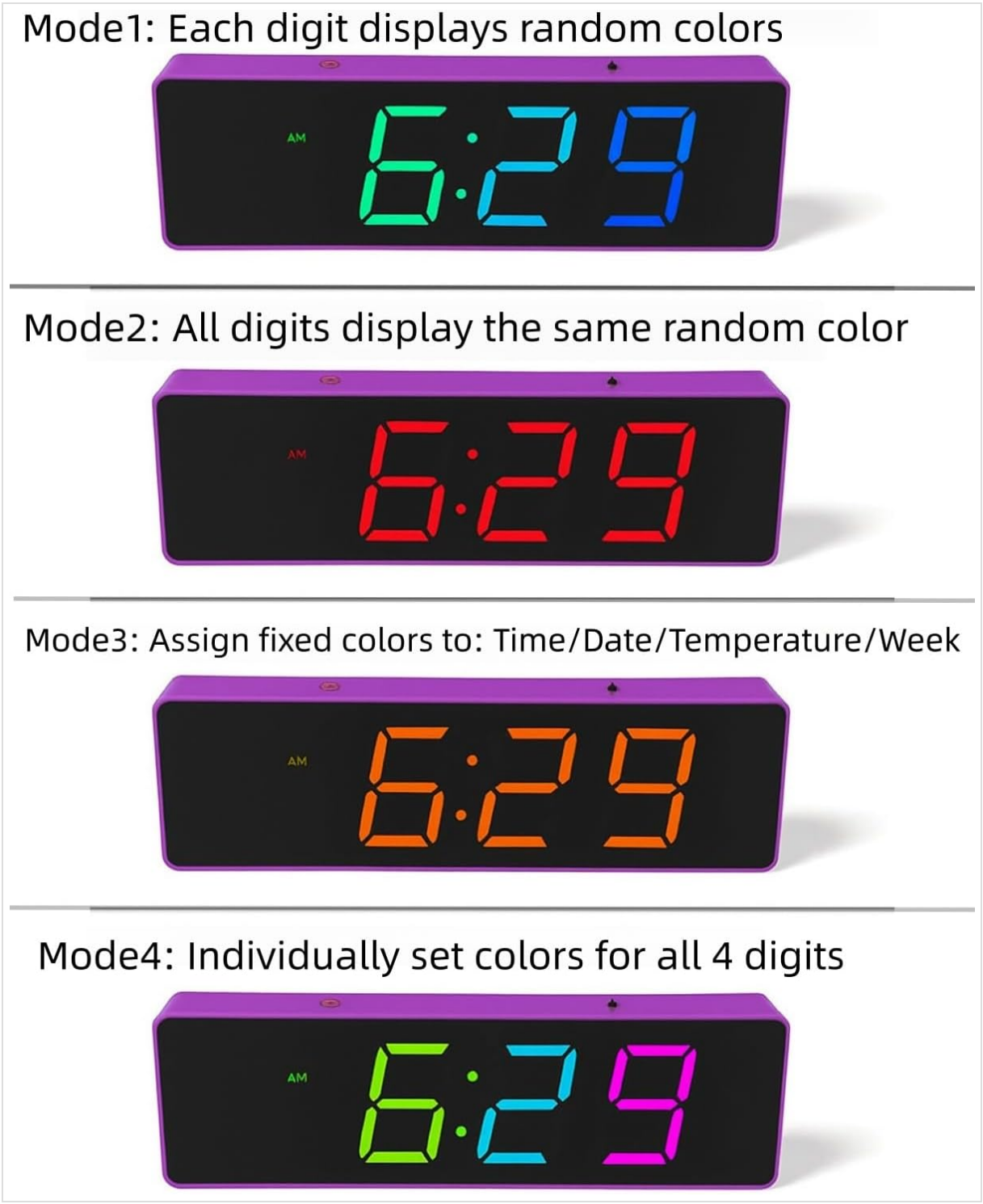


Image: Examples of the four RGB color modes available: individual random colors per digit, all digits displaying the same random color, fixed colors for different display elements, and individually assigned colors for each digit.

- **Mode 1:** Each digit displays random colors.
- **Mode 2:** All digits display the same random color.
- **Mode 3:** Assign fixed colors to Time, Date, Temperature, and Week displays.
- **Mode 4:** Individually set colors for each of the four digits.

5.6. Brightness Adjustment

The clock offers 4 levels of brightness. It also features an auto-dimming function, which adjusts brightness based on ambient light detected by the photosensitive sensor (LDR).

6. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the casing and display. Avoid abrasive cleaners or solvents.
- **Battery Replacement:** If the clock loses time or settings during power outages, the CR1220 backup battery may need replacement. Carefully open the casing, remove the old battery, and insert a new CR1220 battery with the correct polarity.
- **Component Inspection:** Periodically inspect soldered joints for any signs of corrosion or damage. Re-solder any loose connections if necessary.

7. Troubleshooting

Problem	Possible Cause	Solution
Clock does not power on.	No power, faulty USB cable, incorrect soldering of power components.	Check USB power source and cable. Inspect Micro USB solder joints. Verify power supply connections on PCB.
Display is blank or shows incorrect characters.	Faulty display connection, incorrect IC insertion, soldering errors on display drivers.	Ensure ICs are correctly seated in their sockets and oriented. Inspect all solder joints related to the display and ICs.
Clock does not keep time or time does not advance.	Faulty 32.768KHz crystal, incorrect soldering of clock IC (DS1302) or crystal, dead CR1220 backup battery.	Inspect solder joints for the crystal and DS1302 IC. Ensure the CR1220 battery is installed correctly and is functional. Replace crystal if necessary.
Buttons do not respond.	Incorrect soldering of buttons, faulty buttons, connection issues to controller IC.	Check solder joints for SW1 and SW2 buttons. Ensure buttons are not stuck.
Alarm does not sound.	Buzzer not soldered correctly, alarm not set, volume too low (if adjustable).	Verify buzzer solder joints. Ensure alarm is enabled and set correctly in the clock's settings.

8. Specifications

Brand	MUXWELL
Model Number	HU-058M

Display Type	Digital LED (4-Digit, RGB)
Power Source	Battery Powered (CR1220 for backup), Micro USB (5V DC) for operation
Product Dimensions	Approximately 2"W x 0.8"H (Note: Product description states 8 inches wide, specifications state 2"W x 0.8"H. Using the more detailed image dimension of 166mm x 50mm x 21mm for clarity.)
Approximate Dimensions (Assembled)	166mm (Length) x 50mm (Height) x 21mm (Depth)
Item Weight	5.3 ounces (kit components)
Material	Plastic casing
Special Features	Alarm, RGB Color Modes, 4 Brightness Levels, Temperature/Date Display, 12/24H Format, Power-off Memory

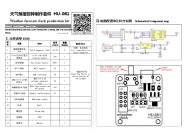
9. Warranty and Support

Specific warranty information for the MUXWELL DIY Digital Alarm Clock Soldering Kit (Model HU-058M) is not provided in the product details. For warranty claims, technical support, or inquiries regarding missing components, please contact the manufacturer directly through their official channels or the retailer from whom the kit was purchased.

© 2025 MUXWELL. All rights reserved.

Related Documents - HU-058M

	HU-058 RGB Colorful LED Digital Electronic Clock DIY Kit - Assembly and User Guide Comprehensive guide for the HU-058 RGB Colorful LED Digital Electronic Clock DIY Kit, detailing features, parameters, setup methods, component listing, and step-by-step installation instructions for hobbyists and beginners.
	HU-054A Multi-Functional Calculator DIY Kit: Assembly and Usage Guide Comprehensive guide for assembling and operating the HU-054A Multi-Functional Calculator DIY Kit. Features include basic arithmetic, color ring resistance calculation, and a clear 6-digit display. This document details component listing, applications, and step-by-step installation instructions.

	[HU-061 Weather Forecast Clock Production Kit Assembly and Setup Guide] A comprehensive guide to assembling and configuring the HU-061 Weather Forecast Clock production kit, including component lists, circuit diagrams, and step-by-step instructions for connecting to Wi-Fi and obtaining weather data.
	[HU-064 High Voltage Electromagnetic Transmitter DIY Kit | Educational Science Project] Learn about electromagnetism and electronics with the HU-064 High Voltage Electromagnetic Transmitter DIY Kit. This educational kit allows users to build a functional device, practice soldering, and understand high-voltage principles.
	[HU-050SW Voltage Ammeter PWM Signal Generator DIY Kit - Assembly and User Guide] Comprehensive guide for assembling and using the HU-050SW Voltage Ammeter PWM Signal Generator DIY Kit. Includes component listing, installation steps, and usage instructions for this multifunctional electronic testing instrument.
	[Growatt WIT 4-15K-HU Hybrid Inverter User Manual: Installation, Operation & Maintenance Guide] Official user manual for Growatt WIT 4-15K-HU series 3-phase hybrid inverters. Covers installation, operation, safety, maintenance, and troubleshooting for technicians. Learn about solar energy management with Growatt.