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> [MiOYOOW 6-Digit Calculator Soldering Practice Kit Instruction Manual \(Model B0DJ2L5MS9\)](#)

## MiOYOOW B0DJ2L5MS9

# MiOYOOW 6-Digit Calculator Soldering Practice Kit

## INSTRUCTION MANUAL - MODEL B0DJ2L5MS9

Your gateway to electronics learning and math games.

### Introduction

The MiOYOOW 6-Digit Calculator Soldering Practice Kit (Model B0DJ2L5MS9) offers an engaging way to learn electronics and soldering skills while building a functional calculator. This kit is designed for educational purposes, allowing users to assemble a 6-digit desktop calculator that performs basic arithmetic operations and includes math games with various difficulty levels. It's an ideal project for students and hobbyists interested in STEM education.

### 1. Setup and Assembly

This section details the step-by-step assembly process for your MiOYOOW 6-Digit Calculator. Basic electronic theoretical knowledge and soldering skills are required. Please follow the instructions carefully.

1. **Unpack Components:** Carefully unbox all components and verify against the parts list.

# Components in Package

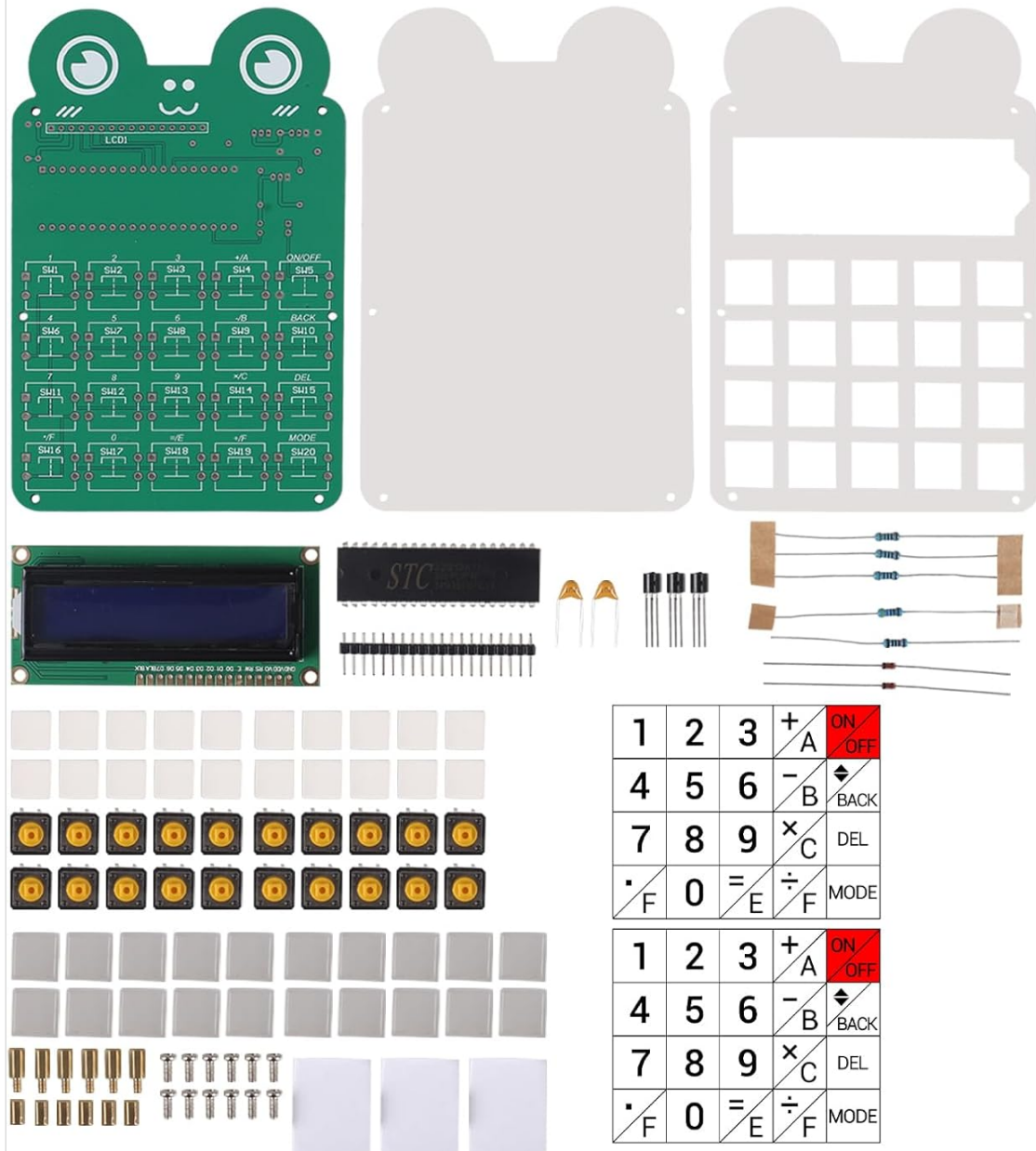


Figure 1: All components of the MiOYOOOW 6-Digit Calculator Soldering Practice Kit, including the main PCB, LCD display, IC chip, resistors, capacitors, tactile switches, keycaps, battery holders, and acrylic casing parts.

2. **Soldering Diodes:** Identify the diodes (EN 4148). Note the black band indicating polarity. Insert diodes into the PCB, ensuring the black band aligns with the white marking on the circuit board. Solder the leads and trim any excess.
3. **Soldering Resistors:** Identify resistors. Resistors do not have polarity. Bend the pins and insert them into the designated spots on the PCB. Solder the leads and trim any excess.
4. **Soldering Capacitors:** Identify disk capacitors. These do not have polarity. Insert them into the PCB, solder, and trim. Identify electrolytic capacitors. These have polarity (longer lead is positive). Ensure correct orientation. Insert, solder, and trim.
5. **Installing IC Socket:** Locate the IC socket. Note the notch on one end. Align the notch with the corresponding marking on the PCB. Insert the socket, solder all pins, and check for short circuits or virtual welds.
6. **Installing Buzzer:** Identify the buzzer. Note the positive (+) marking. Align the positive side of the buzzer with the positive marking on the PCB. Insert, solder, and trim.

7. **Installing Digital Tube Display:** Carefully insert the digital tube displays into their respective positions on the PCB. Ensure the decimal points are correctly aligned. Solder all pins.
8. **Installing Transistors (85503 pole tube):** Identify the transistors. Pay attention to the orientation (flat side or specific pinout). Insert into the PCB, solder, and trim.
9. **Installing Tactile Switches:** Insert all tactile switches into their designated positions on the PCB. Ensure they are properly seated and cannot be easily pried up. Solder all solder joints, being careful to avoid short circuits or cold joints.
10. **Preparing Keycaps:** Cut out the individual number and function labels from the provided paper sheet using a knife or scissors. Place each label inside a translucent keycap, then secure it with a blue hat.
11. **Attaching Keycaps:** Install the prepared keycaps onto the tactile switches on the PCB in the correct order according to the calculator layout. If a keycap is installed incorrectly, gently pry it off with tweezers and reinstall.

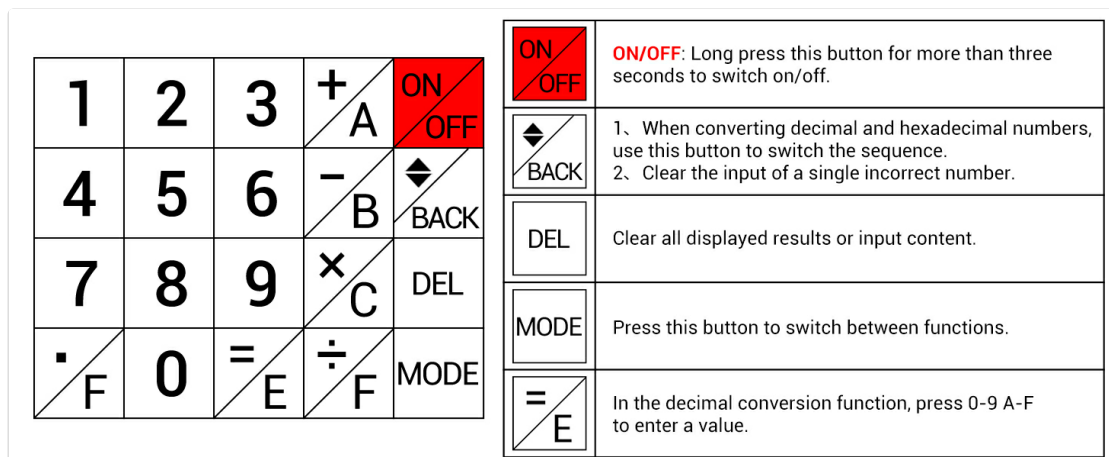


Figure 2: A diagram illustrating the layout of the calculator keypad with labels for each button's function, including numbers, arithmetic operations, and special modes.

12. **Battery Holder Assembly:** Trim the battery shrapnel (contacts) if necessary, following the paper tutorial. Load the battery shrapnel into the clear acrylic battery case, bending the pieces to secure them. Solder the red (positive) and black (negative) wires from the battery case to the corresponding + and - terminals on the PCB.
13. **Final Assembly:** Insert the batteries into the battery case. Place the sponge pad on the back of the PCB to prevent battery loosening. Align the PCB with the acrylic casing. Secure the upper cover with screws, ensuring not to overtighten.

Video 1: Detailed assembly instructions for the DIY Electronic Calculator Kit, demonstrating each soldering and installation step.

## 2. Operating Instructions

Your MiOYOOW 6-Digit Calculator offers both standard calculation functions and engaging math games.

1. **Power On/Off:** Long press the "ON/OFF" button for more than three seconds to switch the calculator on or off.
2. **Calculate Mode:** Press the "MODE" button until "CHALLENGE" or a similar indicator appears on the display. Perform basic arithmetic operations (addition, subtraction, multiplication, division)

using the numeric and operator keys. The calculator supports 6-digit numbers and conversion between decimal and hexadecimal.



Figure 3: The calculator in "Calculate Mode" showing a complex arithmetic expression and its computed result on the display.

- Math Games Mode:** Press the "MODE" button to cycle through the available math games (addition, subtraction, multiplication, division). Select a difficulty level from 1 to 7 using the appropriate buttons (refer to the keypad diagram). The calculator will present math problems. Input your answer using the numeric keys and press "=" to submit. The timed quiz challenges users to complete equations correctly within a deadline.

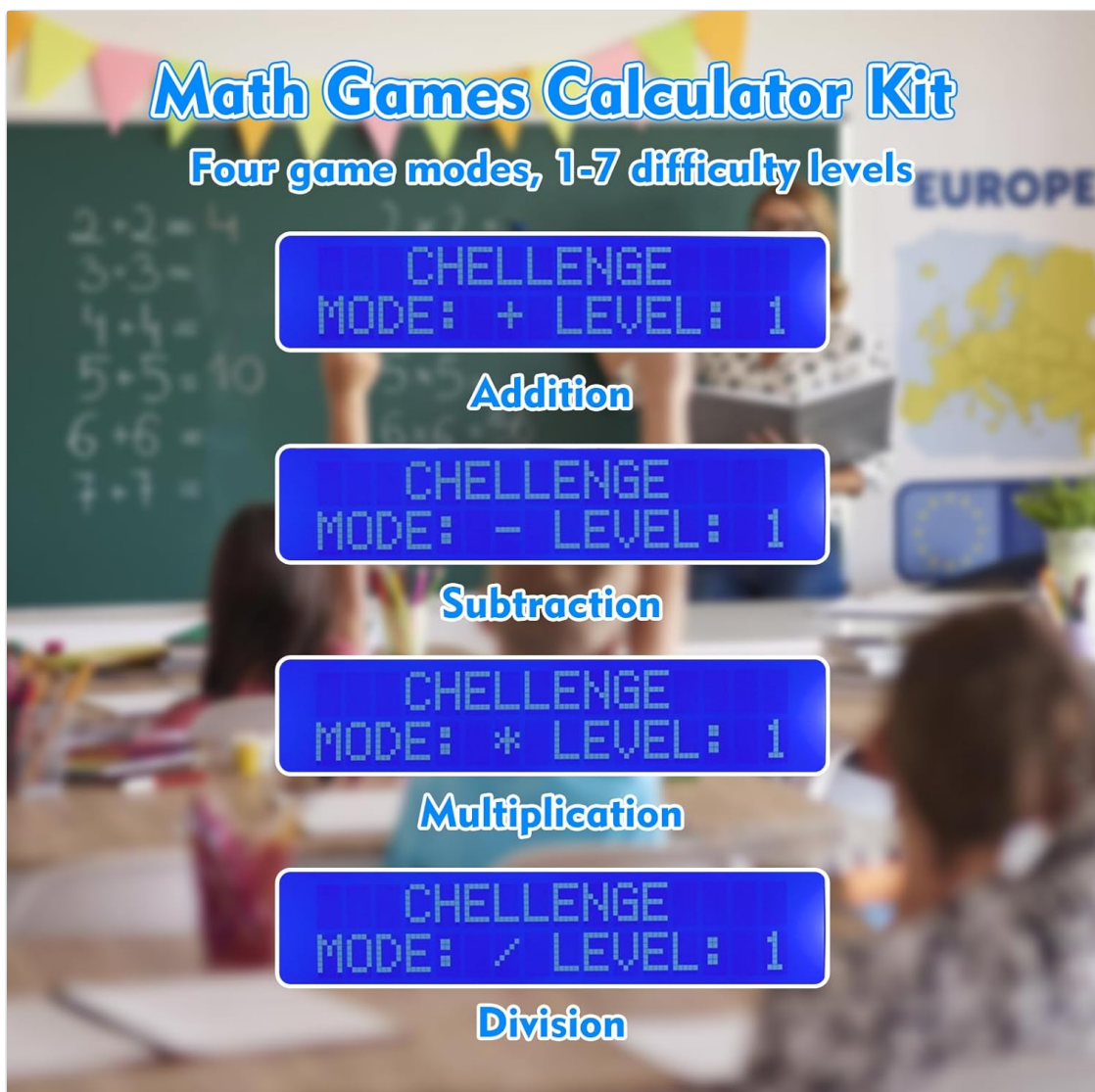


Figure 4: The calculator display showing the four math game modes: Addition, Subtraction, Multiplication, and Division, each with a challenge level.

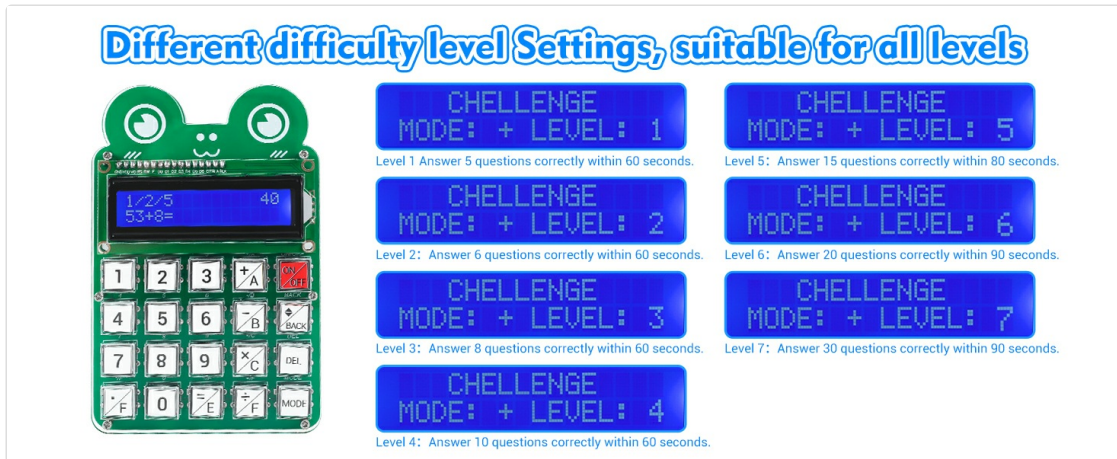


Figure 5: A visual guide detailing the 7 difficulty levels for the math games, including the number of questions and time limits for each level.

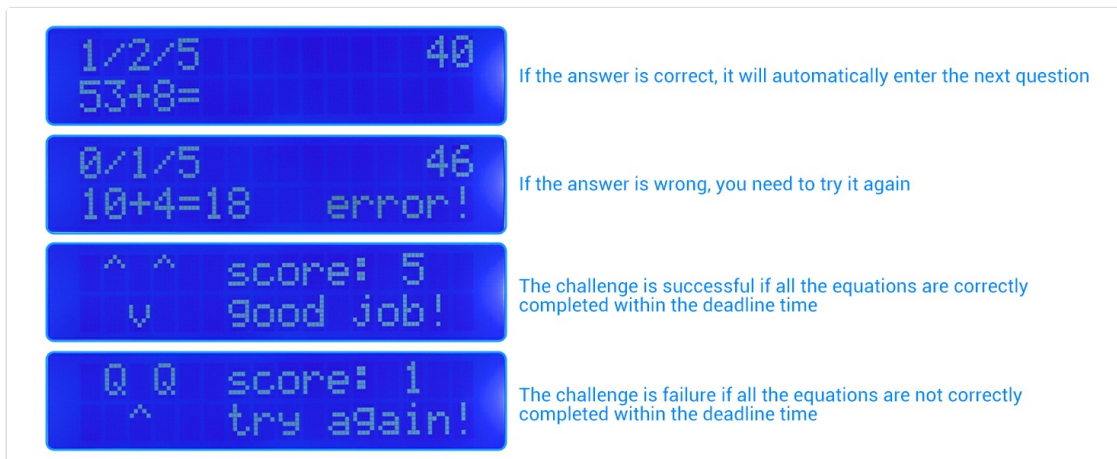


Figure 6: Screenshots of the calculator display showing feedback for correct answers ("Good job!") and incorrect answers ("error! try again!"), along with score updates.

Video 2: A demonstration of the 6-digit Math Games Calculator Kit in action, showcasing how to select game modes, difficulty levels, input answers, and receive immediate feedback.

#### 4. Special Functions:

- "BACK" button: Clears the input of a single incorrect number.
- "DEL" button: Clears all displayed results or input content.
- Decimal/Hexadecimal Conversion: Use the designated buttons (e.g., 'A' through 'F' for hexadecimal input) and the conversion button to switch between number bases.

### 3. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the calculator's surface. Avoid abrasive cleaners or solvents.
- **Battery Replacement:** When the display dims or functions become erratic, replace the two Lithium Ion batteries (included). Ensure correct polarity.
- **Storage:** Store the calculator in a cool, dry place away from direct sunlight and extreme temperatures.

## 4. Troubleshooting

- **Calculator Not Powering On:**
  - Check battery installation and ensure batteries are charged.
  - Verify all power-related solder joints (battery wires, main switch) are secure.
- **Incorrect Calculations/Display Errors:**
  - Recheck all resistor and diode polarities during assembly.
  - Inspect all solder joints for cold joints or short circuits, especially around the IC and digital displays.
  - Ensure the IC chip is correctly seated in its socket.
- **Buttons Not Responding:**
  - Verify that all tactile switches are properly soldered and seated.
  - Check that keycaps are correctly installed and not obstructing button presses.
- **Math Games Malfunctioning:**
  - Ensure the microcontroller is correctly installed and seated in its socket.
  - Review all connections related to the display and input buttons.
- **General Soldering Issues:**
  - If components are loose or connections are intermittent, re-solder the affected joints. Ensure proper heat and solder application.

## 5. Specifications

# Product Size and Details



Figure 7: An image detailing the product dimensions (5.23 x 3.54 x 0.66 inches) and highlighting features like the 6-digit clear display screen and large, easy-to-use buttons.

- **Product Dimensions:** 5.23 x 3.54 x 0.66 inches
- **Item Weight:** 7.4 ounces
- **Power Source:** Battery Powered (2 Lithium Ion batteries included)
- **Screen Size:** 2.55 Inches
- **Calculator Type:** Standard Function, 6-Digit Display
- **Features:** Basic arithmetic operations, decimal to hexadecimal conversion, math games with 7 difficulty levels.

## 6. Warranty

This product comes with a standard manufacturer's warranty against defects in materials and workmanship. Please retain your proof of purchase for warranty claims. For specific warranty details, refer to the product packaging or contact MiOYOOW customer support.

## 7. Support

For further assistance, technical support, or to explore other DIY electronic kits, please visit the official MiOYOOW Store: [MiOYOOW Store on Amazon](#)