Whadda WSG113

Whadda WSG113 Electronic Dice Solder Kit

Instruction Manual

1. Introduction

This manual provides detailed instructions for the assembly, operation, and maintenance of the Whadda WSG113 Electronic Dice Solder Kit. This kit is designed to introduce users to basic electronics and soldering techniques by building a functional electronic dice with LED indication. Upon completion, the device will simulate a dice roll, with LEDs lighting up randomly and slowly settling on a final number when a button is released.

2. Safety Instructions

WARNING: This kit involves soldering, which uses high temperatures and can produce fumes. Always follow these safety guidelines:

- **Adult Supervision:** This kit is recommended for ages 18 months - 8 years according to the product page, but due to soldering, adult supervision is highly recommended for younger users. Soldering requires precision and handling of hot tools.
- **Ventilation:** Work in a well-ventilated area to avoid inhaling solder fumes.
- **Eye Protection:** Always wear safety glasses to protect your eyes from solder splashes or flying component leads.
- **Hot Surfaces:** Soldering irons become extremely hot. Avoid touching the tip and allow components to cool before handling.
- **Fire Safety:** Keep flammable materials away from your soldering workstation. Have a fire extinguisher or water nearby.
- **Electrical Safety:** Ensure your soldering iron is in good condition and properly grounded. Disconnect power before making adjustments or repairs.
- **Lead-Free Solder:** If using leaded solder, wash hands thoroughly after handling. Consider using lead-free solder for reduced health risks.

3. Package Contents

Before beginning assembly, verify that all components are present and undamaged. The Whadda WSG113 Electronic Dice Solder Kit typically includes:

- Printed Circuit Board (PCB)
- Various electronic components (resistors, capacitors, diodes, integrated circuits, LEDs, push button, battery clip)
- Component identification sheet or diagram
- Assembly instructions (this manual serves as a comprehensive guide)

Image 3.1: The Whadda WSG113 Electronic Dice Solder Kit, showing the retail packaging and the assembled electronic dice circuit board. This image illustrates what the kit looks like when purchased and the final product.

4. Assembly and Setup

This section guides you through the process of assembling your electronic dice kit. A basic understanding of soldering is beneficial. If you are new to soldering, it is recommended to practice on scrap components first.

4.1 Required Tools (Not Included)

- Soldering iron with a fine tip
- Solder (preferably lead-free)
- Wire cutters/flush cutters
- Small pliers or tweezers
- Desoldering braid or pump (for corrections)
- Safety glasses

- 9V battery (for operation)

4.2 Assembly Steps

1. **Identify Components:** Carefully identify all components using the provided diagram or component list. Pay attention to resistor values (color codes), capacitor polarities, and integrated circuit (IC) orientations.
2. **Prepare PCB:** Ensure the Printed Circuit Board (PCB) is clean and free of debris.
3. **Solder Low-Profile Components First:** Start by soldering components that lie flat on the board, such as resistors and diodes. Insert each component, bend the leads slightly to hold it in place, and solder one lead. Check alignment, then solder the second lead. Trim excess leads with flush cutters.
4. **Solder Diodes and LEDs:** Pay close attention to the polarity of diodes and Light Emitting Diodes (LEDs). The longer lead of an LED is typically the anode (+), and the shorter lead is the cathode (-). Match these to the markings on the PCB.
5. **Solder IC Sockets (if included):** If the kit includes IC sockets, solder these before inserting the actual ICs. This protects the ICs from heat damage during soldering. Ensure the notch on the socket aligns with the notch marking on the PCB.
6. **Solder Capacitors:** Electrolytic capacitors have polarity. The longer lead is positive (+), and the stripe on the casing indicates the negative (-) lead. Match these to the PCB markings. Ceramic capacitors typically do not have polarity.
7. **Solder Integrated Circuits (ICs):** If using sockets, carefully insert the ICs into their respective sockets, ensuring the notch on the IC aligns with the notch on the socket and PCB. If soldering directly, align the notch and solder one pin, then check alignment before soldering the rest.
8. **Solder Push Button and Battery Clip:** Solder the push button and the battery clip wires (red for positive, black for negative) to their designated pads on the PCB.
9. **Inspect Solder Joints:** After all components are soldered, carefully inspect every solder joint. Look for shiny, cone-shaped joints. Re-solder any dull, lumpy, or bridged joints. Ensure no solder bridges exist between adjacent pads.

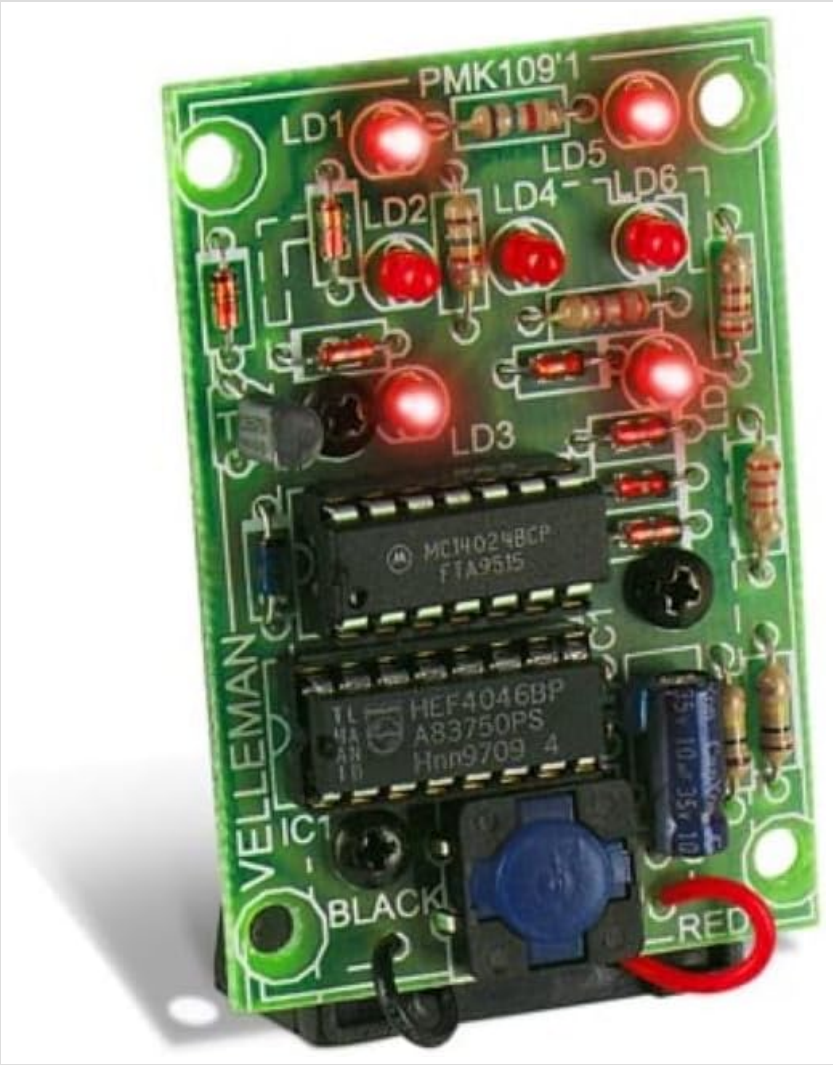


Image 4.1: A fully assembled Whadda WSG113 Electronic Dice circuit board, showcasing the soldered components and illuminated LEDs. This represents the final appearance of the kit after successful assembly.

Image 4.2: A detailed view of the Whadda WSG113 Electronic Dice circuit board, highlighting the integrated circuits (ICs), resistors, capacitors, and LEDs. This image can assist in component identification and placement during assembly.

5. Operating Instructions

Once your Whadda WSG113 Electronic Dice is fully assembled and inspected, it is ready for operation.

1. **Connect Power:** Attach a 9V battery to the battery clip connected to the circuit board. Ensure correct polarity (red wire to positive, black wire to negative).
2. **Activate Dice Roll:** Press and hold the push button on the circuit board. You should observe the LEDs lighting up in a rapid, random sequence, simulating a dice roll in progress.
3. **Release Button:** Release the push button. The rapid LED sequence will slow down and eventually settle on a pattern of LEDs representing a number from 1 to 6.
4. **Repeat:** To roll the dice again, simply press and release the button.

6. Maintenance

The Whadda WSG113 Electronic Dice Solder Kit requires minimal maintenance to ensure long-term functionality.

- **Cleaning:** Keep the circuit board clean and free of dust. Use a soft, dry brush or compressed air to remove any accumulation. Avoid using liquids directly on the circuit.
- **Battery Replacement:** If the LEDs appear dim or the dice roll function becomes erratic, replace the 9V battery.
- **Storage:** Store the assembled kit in a dry, cool environment, away from direct sunlight and extreme temperatures.

- **Handling:** Handle the circuit board by its edges to avoid touching components or solder joints, which could cause damage or introduce static electricity.

7. Troubleshooting

If your electronic dice is not functioning as expected, refer to the following troubleshooting guide:

Problem	Possible Cause	Solution
No LEDs light up when button is pressed.	• No power or low battery. • Incorrect battery polarity. • Poor solder joint on battery clip or power input. • Component inserted incorrectly (e.g., IC, diode, LED). • Solder bridge shorting power.	• Check 9V battery, replace if necessary. • Ensure red wire is to positive, black to negative. • Inspect and re-solder power connections. • Carefully check all component orientations against the diagram. • Inspect PCB for unintended solder bridges.
Some LEDs do not light up.	• Faulty LED. • LED inserted with incorrect polarity. • Poor solder joint on the specific LED or its associated resistor.	• Test the LED if possible, replace if faulty. • Verify LED polarity (longer lead positive). • Inspect and re-solder connections for the affected LED.
Dice always shows the same number or rolls erratically.	• Faulty or incorrectly inserted IC. • Poor solder joints on IC pins. • Incorrect resistor values.	• Verify IC orientation and ensure all pins are properly soldered. • Check resistor color codes against the diagram.
Push button does not respond.	• Poor solder joint on the push button. • Faulty push button.	• Inspect and re-solder push button connections. • Test the button for continuity if possible.

8. Specifications

Model Number	WSG113
Power Supply	1 x 9V battery (not included)
Product Dimensions	3.07 x 6.1 x 1.5 inches (assembled board)
Item Weight	1.69 ounces
Recommended Age	18 months - 8 years (Note: Soldering requires adult supervision for younger users)

Manufacturer	Velleman Group NV
Features	Electronic dice with LED indication, slowly rolls to a stop when push button is released.

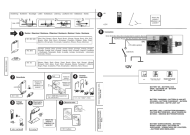
9. Warranty Information

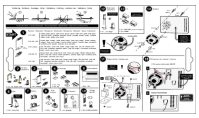
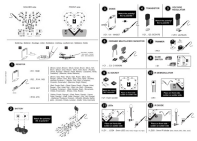
Specific warranty details for the Whadda WSG113 Electronic Dice Solder Kit are typically provided by the retailer or manufacturer at the time of purchase. As this is a DIY solder kit, warranty coverage may be limited to manufacturing defects of individual components prior to assembly. Damage incurred during the assembly process due to improper soldering or handling is generally not covered.
Please retain your proof of purchase. For detailed warranty terms and conditions, refer to the documentation included with your kit or contact the manufacturer, Velleman Group NV, directly.

10. Support and Contact

For technical assistance, missing parts, or further inquiries regarding the Whadda WSG113 Electronic Dice Solder Kit, please contact the manufacturer or your point of purchase.
Manufacturer: Velleman Group NV
Refer to the official Whadda website or Velleman Group NV's contact page for the most up-to-date support information and contact methods.

Related Documents - WSG113

	Whadda WPI300 3x4 Matrix Membrane Keypad User Manual User manual for the Whadda WPI300, a 3x4 matrix membrane keypad designed for Arduino projects. Includes product overview, specifications, installation guide, and example code.
	Whadda WPM464 4-Channel Solid State Relay Module - Manual & Specifications Comprehensive guide to the Whadda WPM464 4-channel Solid State Relay module, covering its introduction, safety instructions, specifications, wiring details, and an example Arduino program. Learn how to safely switch AC loads up to 240V AC / 2A.
	Whadda HWSAA189 Battery Level Indicator Module Guide User guide for the Whadda HWSAA189 Battery Level Indicator module, detailing components, connection, and battery status indicators for optimal power management.

	[Whadda WSAH194 Digitally Controlled FM Radio Soldering Kit Instructions] Step-by-step assembly instructions for the Whadda WSAH194 digitally controlled FM radio soldering kit, detailing components and soldering procedures.
	[Whadda WSL213 Blinking Heart DIY Electronics Kit Assembly Guide] Step-by-step guide for assembling the Whadda WSL213 Blinking Heart DIY electronics kit, detailing component identification, placement, and soldering.
	[Whadda WPSE323 Current Sensor ACS712 Module - 20A User Manual] User manual for the Whadda WPSE323 Current Sensor ACS712 Module, a 20A AC/DC current sensing solution. Includes product overview, specifications, pin layout, and Arduino code example.