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MiOYOOW GY21615-1

MiOYOOW DIY Engine Gear LED Light Kit Instruction Manual

Model: GY21615-1

1. INTRODUCTION

The MiOYOOW DIY Engine Gear LED Light Kit (Model GY21615-1) is an educational electronic soldering project designed to simulate the dynamic movement of gears within an engine using 24 integrated LED lights. This kit offers a hands-on learning experience in basic electronics, mechanical principles, and soldering techniques, making it suitable for STEM education and hobbyists. Upon completion, it functions as an interactive desk ornament with multiple lighting effects.

2. SAFETY INFORMATION

- **Adult Supervision:** This kit involves soldering and small electronic components. Adult supervision is recommended for younger users.
- **Soldering Safety:** Always use soldering irons in a well-ventilated area. Avoid touching the hot tip of the soldering iron. Wear appropriate eye protection.
- **Component Handling:** Handle electronic components carefully. Some components are sensitive to static electricity.
- **Power Source:** Use only the specified DC power source. Do not connect to incorrect voltage or current.
- **Small Parts:** Keep small components away from young children to prevent choking hazards.

3. PACKAGE CONTENTS

Please verify that all the following components are included in your kit:

- Printed Circuit Board (PCB)
- Resistors (various values)
- LEDs (24 pieces)
- Capacitors
- Integrated Circuits (ICs)
- Diodes
- Switches

- DC Power Jack
- USB Power Cable
- Mechanical structural components (e.g., acrylic plates, screws, nuts)
- Paper English Instruction Manual

Wide Application



Soldering Practice



School Electronics Learning



Desktop Decoration



Unique Gift

Image: Overview of kit components and the general assembly process, including checking components, browsing the manual, careful soldering, and the finished product.

4. SETUP AND ASSEMBLY

Follow these steps carefully to assemble your DIY Engine Gear LED Light Kit. Refer to the included paper manual for detailed diagrams and component identification.

1. **Component Identification:** Before starting, identify all components using the provided paper manual. Organize them to ensure easy access during assembly.
2. **Soldering Preparation:** Prepare your soldering station. Ensure your soldering iron is heated to the appropriate temperature and you have solder wire and desoldering braid/pump readily available.
3. **Solder Components:** Begin by soldering the smallest components (resistors, diodes) onto the PCB first, followed by larger components (capacitors, ICs, LEDs, switches, DC jack). Pay close attention to component polarity (for diodes, LEDs, and some ICs) and orientation as indicated on the PCB silkscreen. The PCB is clearly labeled for easy connection mapping.

4. **LED Installation:** Install the 24 LEDs according to the PCB markings. Ensure correct polarity for each LED.
5. **Mechanical Assembly:** Once all electronic components are soldered, assemble the mechanical structure using the provided screws and nuts. This typically involves attaching the PCB to the base and securing any protective covers.
6. **Final Inspection:** After assembly, carefully inspect all solder joints for cold joints, bridges, or incorrect component placement. Ensure all connections are secure.



Image: An adult and child engaged in the soldering process, demonstrating the educational aspect of the kit.

Engine Soldering Practice Kit



Image: A detailed view of the Printed Circuit Board (PCB) with 24 LED lights, illustrating the layout and component placement.

5. OPERATING INSTRUCTIONS

Once assembled, your Engine Gear LED Light Kit is ready for operation.

1. **Power Connection:** Connect the provided USB power cable to the DC power jack on the kit. Plug the other end into a compatible USB power source (e.g., computer USB port, USB wall adapter).
2. **Power On:** The LED lights should illuminate automatically upon power connection.
3. **Change Lighting Modes:** Locate the switch labeled for lighting modes (typically a push-button or toggle switch). Press or toggle this switch to cycle through the 4 dynamic lighting effects.
4. **Adjust Flashing Speed:** Locate the switch labeled for flashing speed adjustment. Press or toggle this switch to select from the 5 adjustable LED flashing speeds.

24 LED lights mimic the motion of gears in an engine. The perfect blend of engineering and art.



Image: Demonstrates four distinct dynamic lighting effects of the engine gear LED display.

6. MAINTENANCE

To ensure the longevity and proper functioning of your kit, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to gently wipe the surface of the kit. Avoid using abrasive cleaners or solvents.
- **Storage:** Store the kit in a dry, dust-free environment when not in use.
- **Handling:** Avoid dropping or subjecting the kit to strong impacts, which could damage internal components or solder joints.
- **Power Off:** Disconnect the power cable when the kit is not in use for extended periods.

7. TROUBLESHOOTING

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

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
LEDs do not light up	<ul style="list-style-type: none"> • No power or incorrect power connection • Incorrect LED polarity • Cold solder joint or short circuit • Faulty component 	<ul style="list-style-type: none"> • Ensure USB cable is securely connected to a working power source. • Check LED orientation; reinstall if necessary. • Inspect all solder joints for proper connection; resolder if needed. Check for accidental solder bridges. • Verify component functionality if possible.
Some LEDs are not working	<ul style="list-style-type: none"> • Individual LED faulty or incorrect polarity • Poor solder joint for specific LED 	<ul style="list-style-type: none"> • Check polarity and solder joints of the affected LEDs. Replace faulty LEDs if identified.
Lighting effects or speed cannot be changed	<ul style="list-style-type: none"> • Faulty switch • Incorrectly soldered switch 	<ul style="list-style-type: none"> • Inspect the switches for damage. • Check solder connections for the switches.

8. SPECIFICATIONS

- **Brand:** MiOYOOW
- **Product Model:** GY21615-1
- **Product Dimensions:** 10 x 6.2 x 1.5 cm (3.93 x 2.44 x 0.59 inches)
- **Item Weight:** 60 g (0.06 kg)
- **Power Source:** DC (via USB cable)
- **Display Type:** LED
- **Lighting Effects:** 4 dynamic modes
- **Flashing Speeds:** 5 adjustable speeds
- **Batteries Required:** No
- **Included Components:** PCB board, resistors, capacitors, LEDs, ICs, diodes, switches, DC power jack, USB power cable, mechanical parts, paper manual.

Product Details & Size

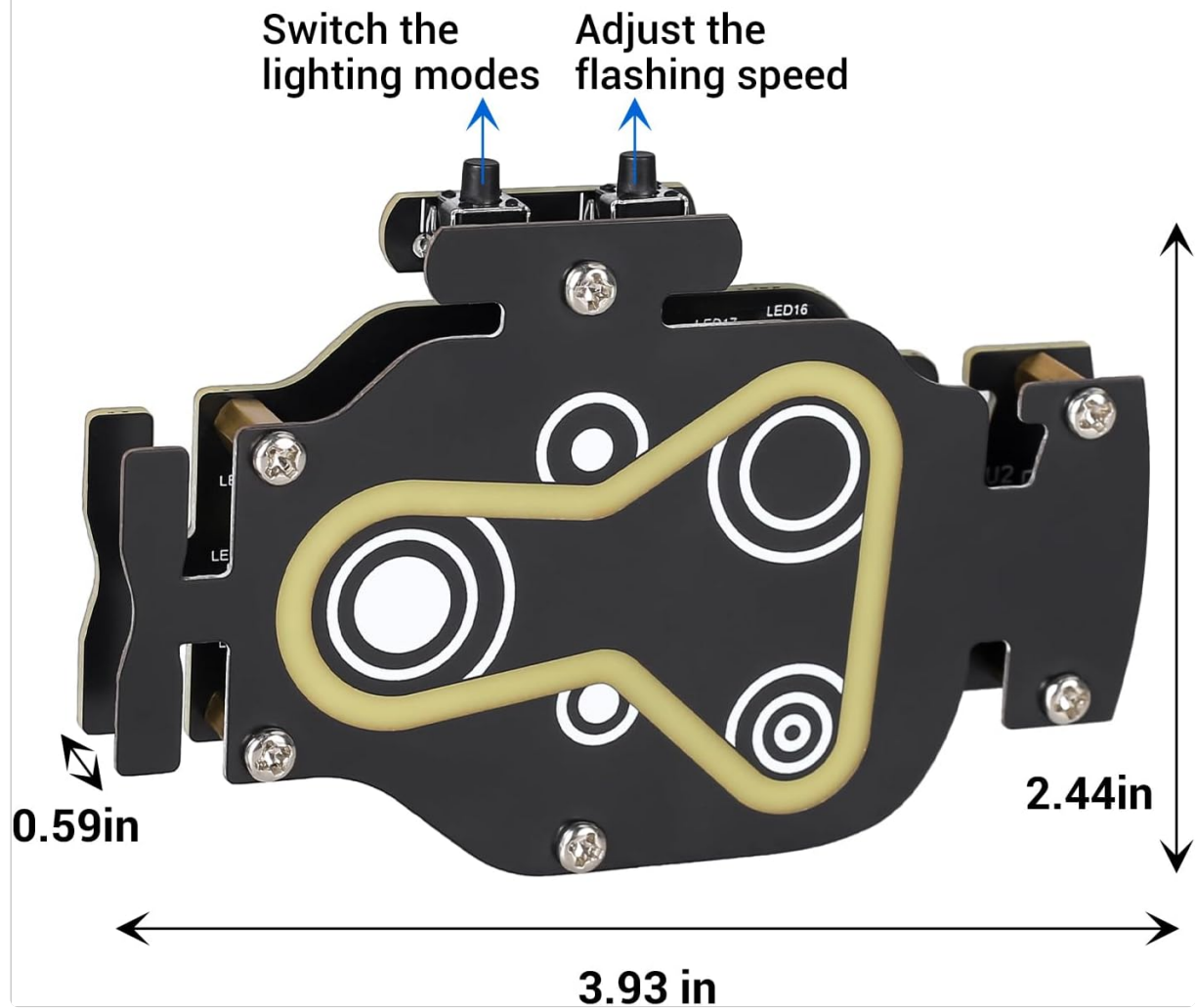


Image: Illustrates the wide applications of the kit, including soldering practice, school electronics learning, desktop decoration, and as a unique gift.

9. WARRANTY INFORMATION

Warranty information for this product is not explicitly provided in the available documentation. Please refer to the retailer or manufacturer's website for any applicable warranty details.

10. SUPPORT

For technical assistance or inquiries regarding the MiOYOOW DIY Engine Gear LED Light Kit, please contact the seller or refer to the support resources available on the MiOYOOW official website, if applicable. Specific contact information is not provided in this manual.