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DONGKER GY20371ABHIC

DONGKER DIY LED Rotating Ferris Wheel Soldering Kit Instruction Manual

Model: GY20371ABHIC

1. Introduction

This manual provides detailed instructions for assembling and operating the DONGKER DIY LED Rotating Ferris Wheel Soldering Kit. This kit is designed for educational purposes, allowing users to practice electronic soldering skills and learn basic circuit principles while constructing a functional, illuminated Ferris wheel model.
The finished project features a rotating Ferris wheel with colorful LED lights, offering over 10 animation effects. It includes 8 gondolas that illuminate and rotate with the main wheel. The Ferris wheel can be controlled via a remote control to switch animations and adjust animation speed.

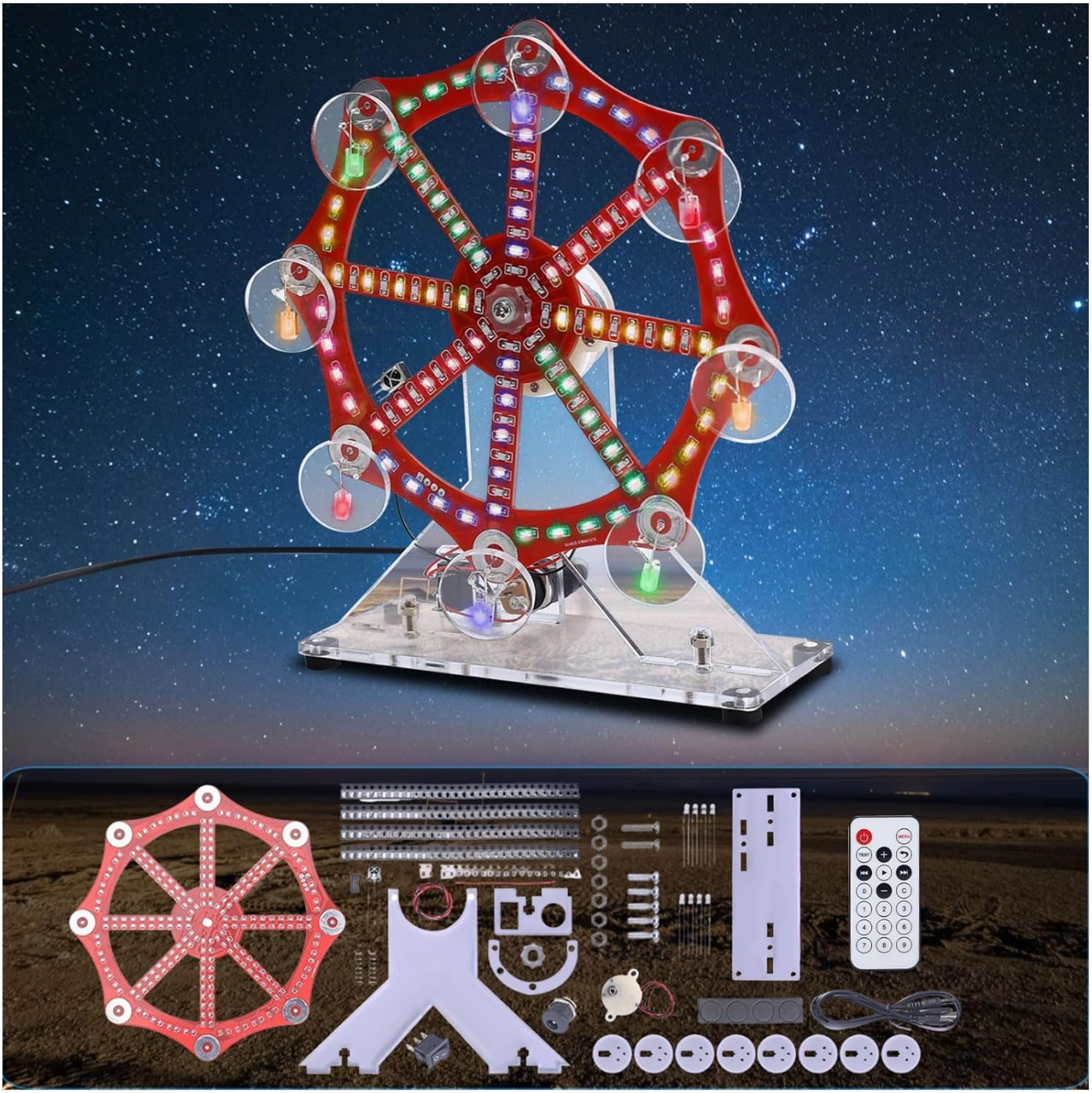


Image 1.1: The fully assembled DONGKER DIY LED Rotating Ferris Wheel Kit, showcasing its colorful LED illumination and rotating gondolas.

2. Components List

Before beginning assembly, verify that all components listed below are present in your kit. Refer to the component listing image for visual identification.

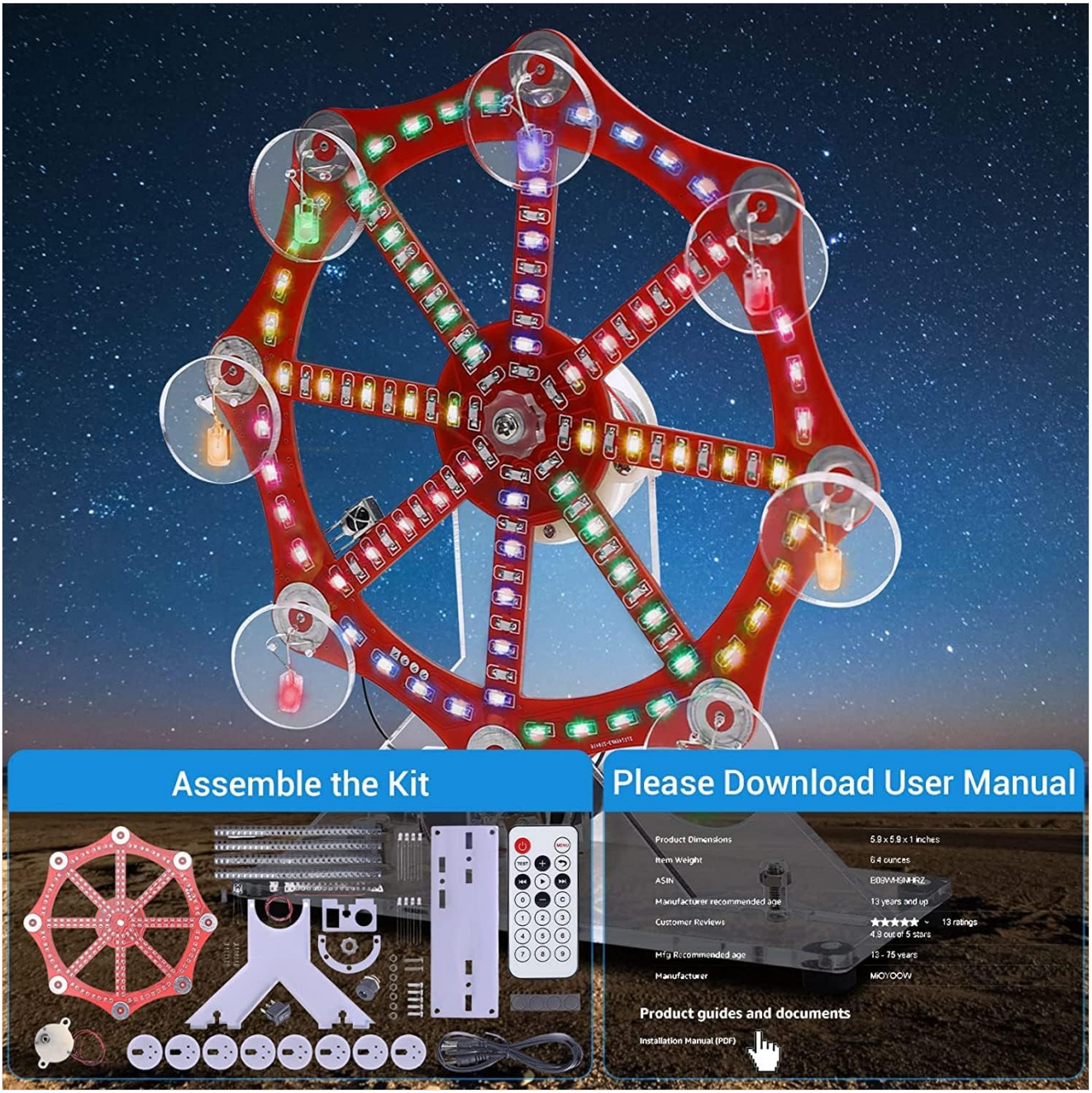


Image 2.1: Detailed component listing table for the kit. Users should cross-reference this list with their package contents.

Note: The manufacturer provides extra components in case of loss during assembly. Users can complete the installation according to the PCB silk screen and component list.

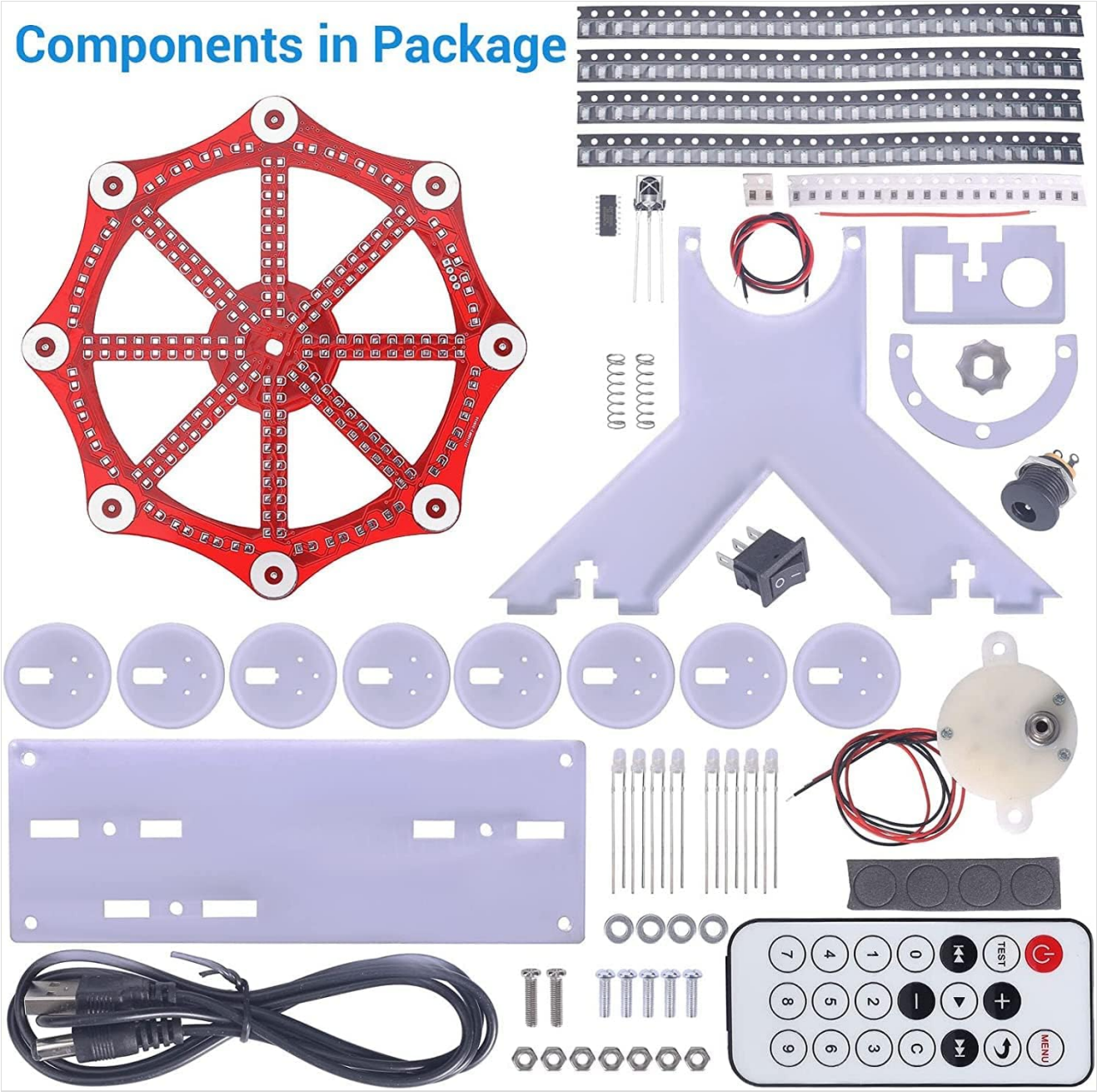


Image 2.2: Overview of all components included in the package, neatly arranged for inspection.

3. Assembly Instructions

This kit requires soldering of Surface Mount Device (SMD) components. Basic soldering skills are recommended. Ensure you have appropriate tools such as a soldering iron with a fine tip, solder, flux, tweezers, and safety glasses.

3.1. Preparation

- Unpack all components and verify against the component list (Section 2).
- Prepare your workspace: ensure it is clean, well-lit, and well-ventilated.
- Familiarize yourself with the PCB layout and component placement indicated by silk screen markings.

3.2. Soldering Electronic Components

The kit uses 1206 large LED lights and other SMD components, which are designed to facilitate installation and soldering. Pay close attention to component polarity (if applicable) and orientation.

1. Begin by soldering the smallest SMD components first, such as resistors and capacitors, followed by the

LEDs.

2. Solder the 0805 SMD LEDs (Red, Blue, Green, Yellow) onto the main Ferris wheel PCB. Ensure correct orientation as LEDs are polarized.
3. Install the Infrared Receiver (HX1) and DC-005 Power Socket.
4. Solder the Power Switch and the 3mm DIP LEDs (Red, Blue, Green, Yellow).
5. Connect the DC Motor and its associated wiring.



Image 3.1: Close-up of a gondola showing a soldered LED. Ensure all connections are secure and clean.



Image 3.2: Detail of the central PCB area with soldered LEDs, highlighting the density of components.

3.3. Mechanical Assembly

Once all electronic components are soldered, proceed with the mechanical assembly using the acrylic parts and screws.

1. Attach the main Ferris wheel PCB to the Acrylic PCB Fix Bracket.
2. Assemble the Acrylic Type-Y Bracket and Acrylic Switch Bracket to form the base structure.
3. Mount the DC motor onto the base, ensuring proper alignment with the Ferris wheel PCB.
4. Secure the Acrylic Bottom Plate.
5. Attach the 8 Acrylic Round LED Brackets (gondolas) to the Ferris wheel structure.
6. Use the provided M3 screws and nuts to secure all acrylic parts.

Component Listing

NO	Component Name	PCB Marker	Parameter	QTY
1	STC15W204S	U1	SOP-16	1
2	0805 SMD Capacitor	C1		1
3	0805 SMD Resistor	R1-R16	1Kohm	16
4	0805 Red LED		SMD	28
5	0805 Blue LED		SMD	28
6	0805 Green LED		SMD	28
7	0805 Yellow LED		SMD	28
8	Infrared Receiver	HX1		1
9	DC-005 Power Socket			1
10	Power Switch			1
11	3mm Red LED		DIP	2
12	3mm Blue LED		DIP	2
13	3mm Green LED		DIP	2
14	3mm Yellow LED		DIP	2
15	Spring			2
16	DC Motor			1
17	USB Power Wire		100cm	1
18	Sponge Pad		Black	4
19	15cm Wire		Red/Black	2
20	10cm Wire		Red	1
21	Remote Control			1
22	M3+15mm Screw			2
23	M3+10mm Screw			5
24	M3 Nut			7
25	M3 Pad			4
26	PCB		150*150*1.6mm	1
27	Acrylic Bottom Plate			1
28	Acrylic Type-Y Bracket			1
29	Acrylic Switch Bracket			1
30	Acrylic Spring Fix Bracket			1
31	Acrylic PCB Fix Bracket			1
32	Acrylic Round LED Bracket			8

Note:Users can complete the installation according to the PCB silk screen and component list.

Image 3.3: Visual guide for assembling the kit, showing the main components before final assembly.

4. Operating Instructions

After successful assembly, connect the USB power cable to power the Ferris wheel. The device is controlled using the included remote control.

4.1. Powering On

- Ensure the power switch on the Ferris wheel base is in the OFF position.
- Connect the USB Power Wire to the DC-005 Power Socket on the Ferris wheel and to a 5V USB power source (e.g., USB wall adapter, computer USB port).
- Flip the power switch on the Ferris wheel base to the ON position. The LEDs should illuminate, and the wheel should begin to rotate.

4.2. Remote Control Functions

The remote control allows you to change LED animation effects and adjust the rotation speed.

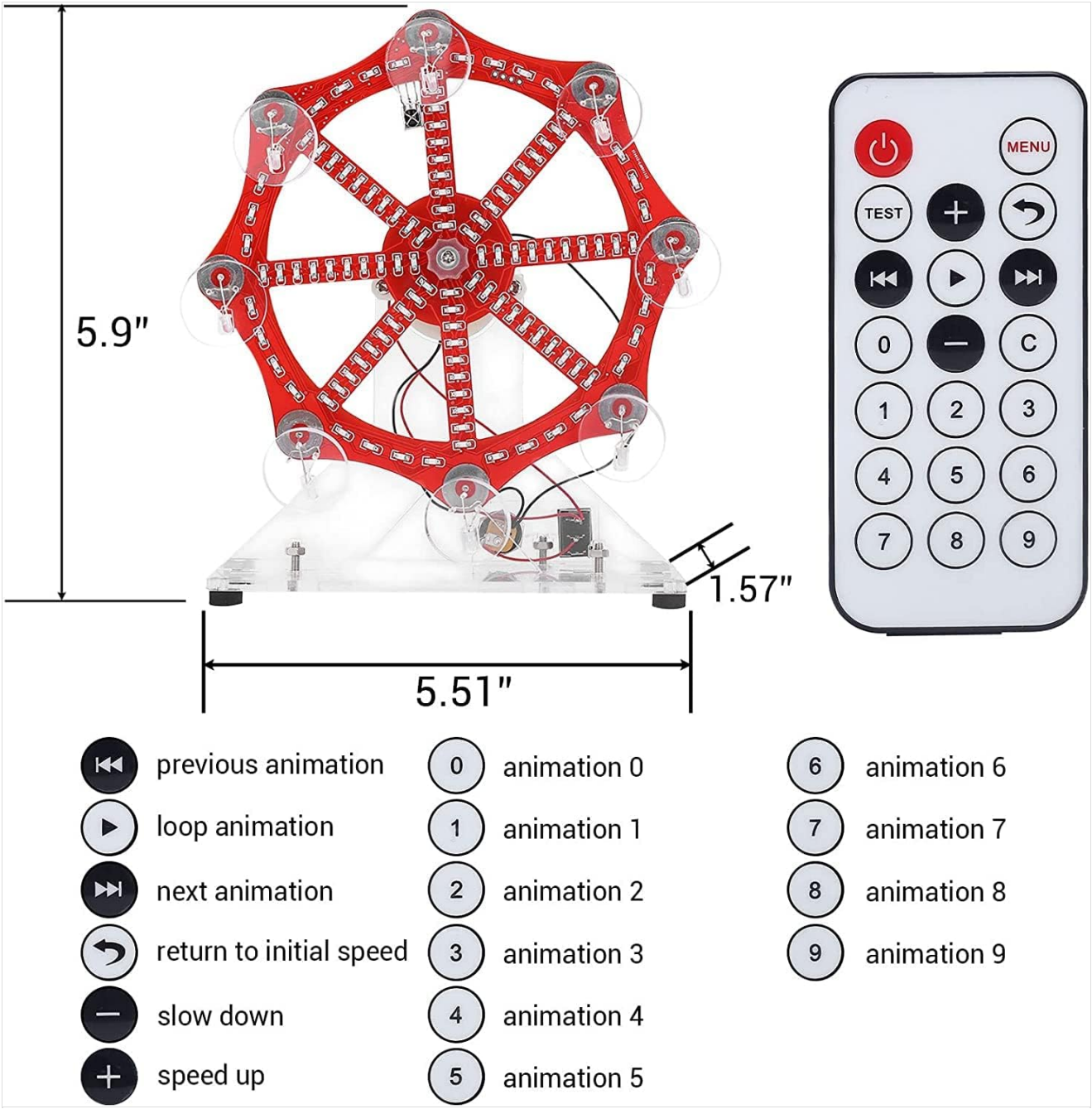


Image 4.1: Remote control layout with button descriptions and product dimensions.

- **Previous Animation:** Cycles to the previous LED animation effect.
- **Loop Animation:** Activates a continuous loop of all animation effects.
- **Next Animation:** Cycles to the next LED animation effect.
- **Return to Initial Speed:** Resets the rotation speed to its default setting.
- **Slow Down (-):** Decreases the rotation speed.
- **Speed Up (+):** Increases the rotation speed.
- **Animation 0-9:** Directly selects specific LED animation patterns.



Image 4.2: Examples of the 10+ LED animation effects available, showcasing various light patterns.

5. Maintenance

The DONGKER DIY LED Rotating Ferris Wheel Kit requires minimal maintenance to ensure longevity and optimal performance.

- **Cleaning:** Use a soft, dry cloth to gently wipe dust from the acrylic parts and PCB. Avoid using abrasive cleaners or solvents, as they may damage the acrylic or electronic components.
- **Storage:** When not in use, store the Ferris wheel in a dry, cool place away from direct sunlight and excessive humidity.
- **Component Check:** Periodically inspect soldered joints for any signs of corrosion or loosening. Re-solder if necessary.

6. Troubleshooting

If you encounter issues with your DONGKER DIY LED Rotating Ferris Wheel, refer to the following troubleshooting

guide:

Problem	Possible Cause	Solution
Ferris wheel does not power on.	• Power switch is OFF. • USB power cable not connected or faulty. • Faulty power source. • Poor solder joint on power input or main circuit.	• Ensure power switch is ON. • Check USB cable connection; try a different cable. • Try a different USB power adapter or port. • Inspect solder joints for power components and re-solder if needed.
LEDs do not light up or some LEDs are off.	• Incorrect LED polarity during soldering. • Poor solder joint on specific LEDs. • Damaged LED component.	• Carefully check LED orientation and re-solder if reversed. • Inspect solder joints for affected LEDs and re-solder. • Replace damaged LEDs (extra components are provided).
Ferris wheel does not rotate.	• Motor not connected or faulty. • Poor solder joint on motor connections. • Mechanical obstruction.	• Check motor wiring and connections. • Inspect motor solder joints and re-solder. • Ensure no acrylic parts or wires are obstructing the wheel's rotation.
Remote control not working.	• Remote control battery is dead. • Infrared receiver not correctly soldered or faulty. • Obstruction between remote and receiver.	• Replace remote control battery (typically a button cell, not included). • Check solder joints of the infrared receiver. • Ensure a clear line of sight between the remote and the receiver.

7. Specifications

- **Product Dimensions (L x W x H):** 15 x 15 x 3 cm (5.9 x 5.51 x 1.57 inches)
- **Weight:** 230 grams
- **Recommended Age:** 14 years and up
- **Educational Value:** Electronic learning and soldering practice
- **Model Number:** GY20371ABHIC
- **Assembly Required:** Yes
- **Batteries Required:** No (for main unit; remote control typically requires a button cell battery, not included)
- **Power Source:** USB (5V)
- **LED Effects:** 10+ animation effects
- **Control:** Remote control for animation and speed adjustment

8. Warranty and Support

DONGKER is committed to product quality. If you have any questions or require assistance with your kit, please do not hesitate to contact us. We aim to resolve any issues within 12 hours.
For support, please refer to the contact information provided with your purchase or on the official DONGKER

website.

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.

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Details

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

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