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› ElecGear ALPS 2.1K Ω Potentiometer Replacement Kit for PS5 DualSense and PS4 DualShock 4 Controllers

ElecGear 3PIN-Sensor

ElecGear ALPS 2.1K Ω Potentiometer Replacement Kit Instruction Manual

Model: 3PIN-Sensor

1. INTRODUCTION

This instruction manual provides guidance for the installation and use of the ElecGear ALPS 2.1K Ω Potentiometer Replacement Kit. This kit is designed to address common joystick issues such as drift, dead spots, and unresponsive movement in compatible game controllers. The kit includes ALPS 2.1K Ω potentiometers and additional drift fix PCBs.

2. PRODUCT OVERVIEW

The ElecGear ALPS 2.1K Ω Potentiometer is an OEM trim pot resistor specifically manufactured by ALPS. It is designed to fit ALPS analog joysticks found in various game controllers. The kit includes multiple potentiometers and supplementary PCBs for fine-tuning and drift correction.

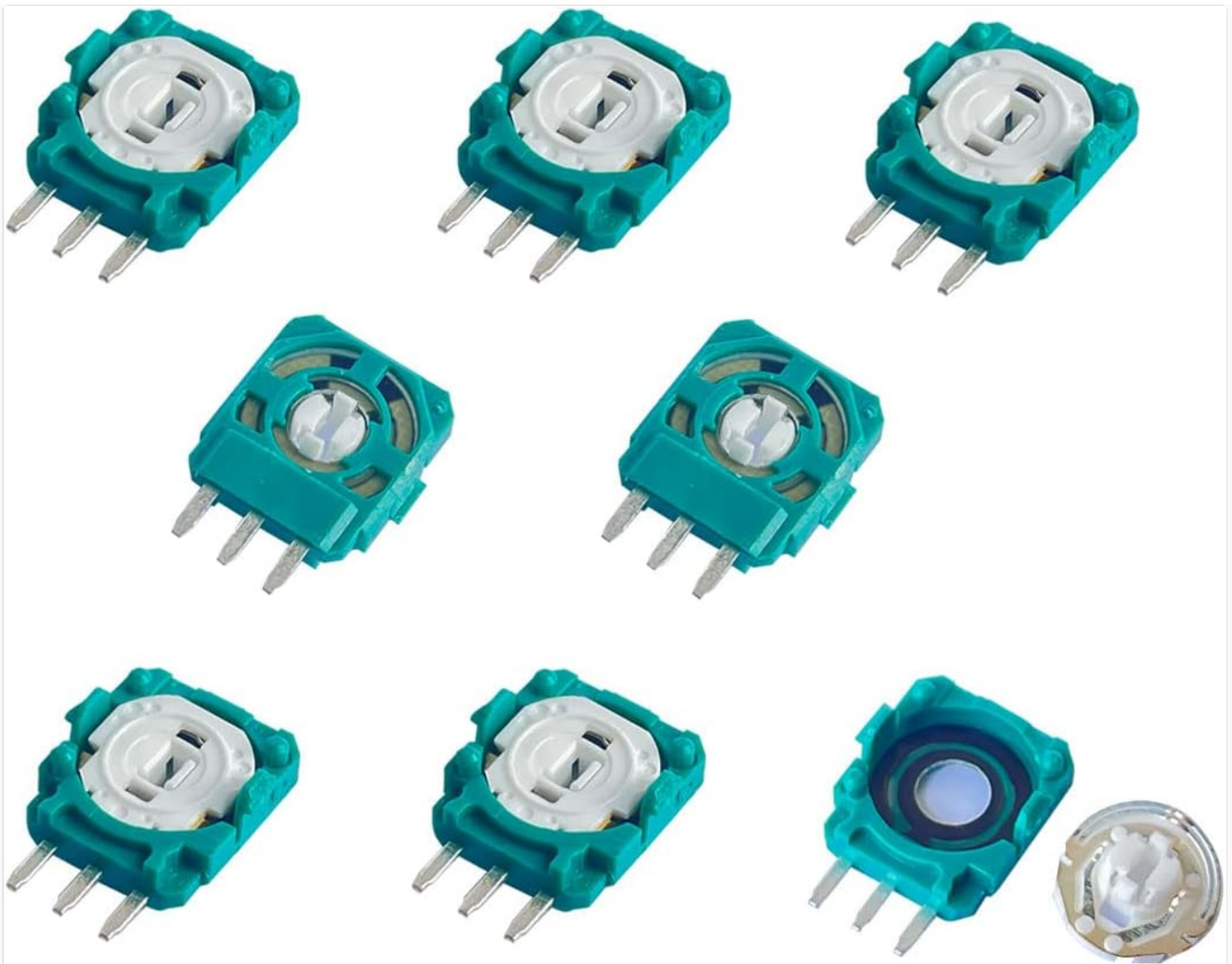


Figure 1: ElecGear ALPS 2.1KΩ Potentiometer Kit Components. This image displays eight individual ALPS 2.1KΩ potentiometers, with some units partially disassembled to show their internal structure, including the disc wheel and carbon film resistor.

ALPS 2.1K Ω Potentiometer

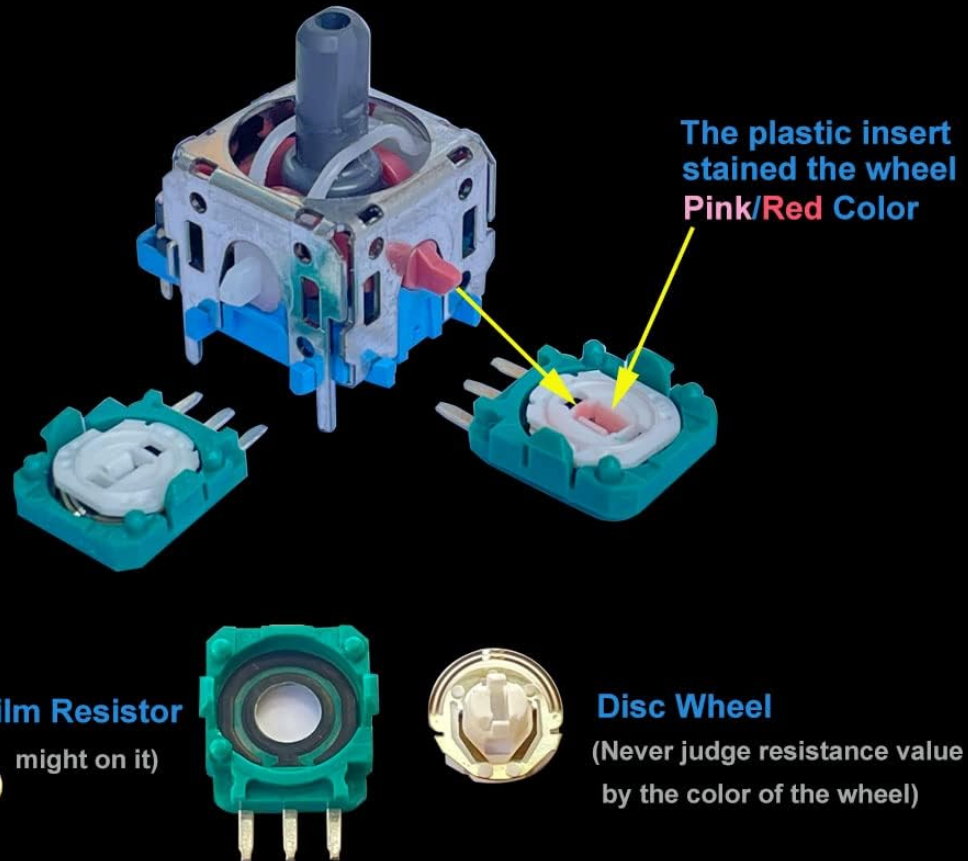


Figure 2: ALPS 2.1K Ω Potentiometer Internal Structure. This diagram illustrates the key components of an ALPS 2.1K Ω potentiometer, including the plastic insert, 2.1K carbon film resistor, and disc wheel. It highlights that the resistance value should not be judged by the color of the wheel.

3. COMPATIBILITY

This 2.1K Ω potentiometer is compatible with:

- PlayStation 5 DualSense wireless controllers.
- Certain PlayStation 4 DualShock 4 wireless controllers that utilize a 2.1K ohm ALPS thumbstick module.

Important Compatibility Notes:

- ALPS version potentiometers are **not interchangeable** with the orange version manufactured by Favor Union.
- ALPS potentiometers are available in different resistance values. Always verify that the required resistance value is 2.1K ohm before ordering and installation. The color of the potentiometer does not indicate its resistance value.
- For most PS3, PS4 DualShock 4, Xbox One, Elite Series 1 and 2, Xbox Series S|X, and Switch Pro controllers, a 10K ohm version is typically required. This 2.1K Ω kit is specifically for controllers requiring that resistance.

The **ALPS** Potentiometer is **NOT** Interchangeable with **Favor Union** version



Figure 3: ALPS vs. Favor Union Potentiometer Compatibility. This image visually demonstrates that ALPS potentiometers (green) are not interchangeable with Favor Union potentiometers (orange), emphasizing the importance of using the correct type for your controller.

4. INSTALLATION GUIDE

The replacement process involves disassembling your controller and either replacing the potentiometer wheel or the entire 3-pin sensor. Exercise caution and use appropriate tools to avoid damage.

4.1. Tools Required (Not Included)

- Small Phillips head screwdriver
- Prying tool (plastic preferred)
- Slotted screwdriver or thin pry tool (for wheel replacement)
- Soldering iron and solder (for 3-pin sensor replacement)
- Desoldering wick or pump (for 3-pin sensor replacement)
- Tweezers or fine-point pliers
- Multimeter (optional, for resistance verification)

4.2. Controller Disassembly

Refer to specific guides for your controller model (PS5 DualSense or PS4 DualShock 4) to safely disassemble it and access the joystick modules. This typically involves removing screws and carefully separating the controller casing.

4.3. Method 1: Replacing the Potentiometer Wheel (No Soldering)

This method is suitable if only the internal carbon film resistor or disc wheel is worn, and the main 3-pin sensor housing is intact.

1. Once the joystick module is accessible, identify the problematic potentiometer sensor.
2. Carefully use a slotted screwdriver or a thin pry tool to gently separate the plastic housing of the sensor, exposing the internal disc wheel.
3. Remove the old, worn disc wheel.
4. Insert a new disc wheel from the replacement kit into the sensor housing.
5. Carefully re-secure the plastic housing.

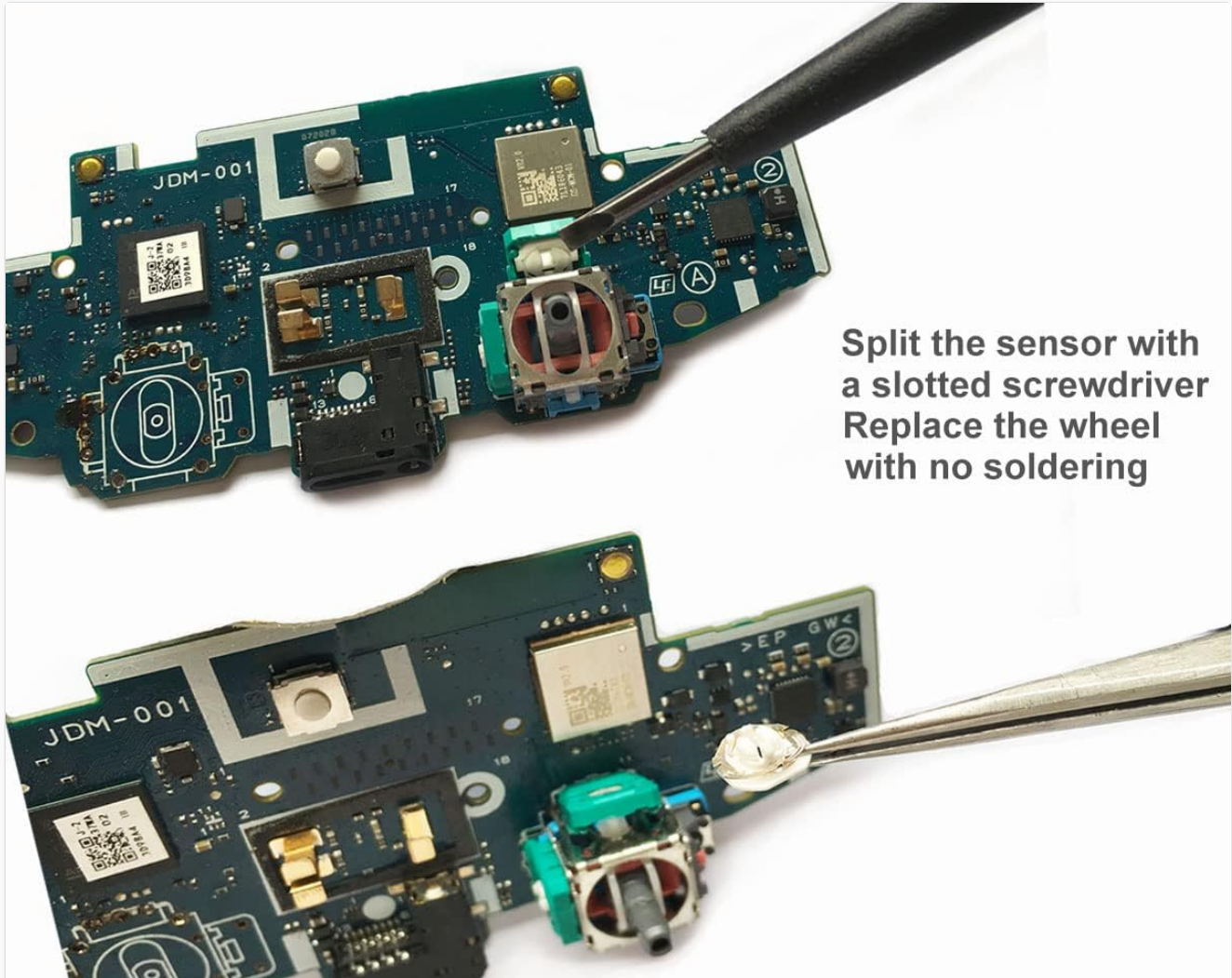


Figure 4: Potentiometer Wheel Replacement. This image illustrates the process of carefully splitting the potentiometer sensor housing with a slotted screwdriver to access and replace the internal disc wheel, eliminating the need for soldering.

4.4. Method 2: Replacing the 3-Pin Sensor (Soldering Required)

This method is required if the entire potentiometer sensor is damaged or if replacing only the wheel does not resolve the issue.

1. Locate the 3-pin potentiometer sensor on the joystick module's PCB.
2. Using a soldering iron and desoldering wick/pump, carefully desolder the three pins of the old sensor from the PCB. Ensure all solder is removed to prevent damage to the PCB traces.
3. Remove the old sensor. A metal pick can assist in clearing any remaining solder from the holes.
4. Align the new 3-pin sensor from the kit with the holes on the PCB.
5. Solder the three pins of the new sensor securely to the PCB. Ensure strong, clean solder joints.

Replace the 3Pin sensor with a solder iron

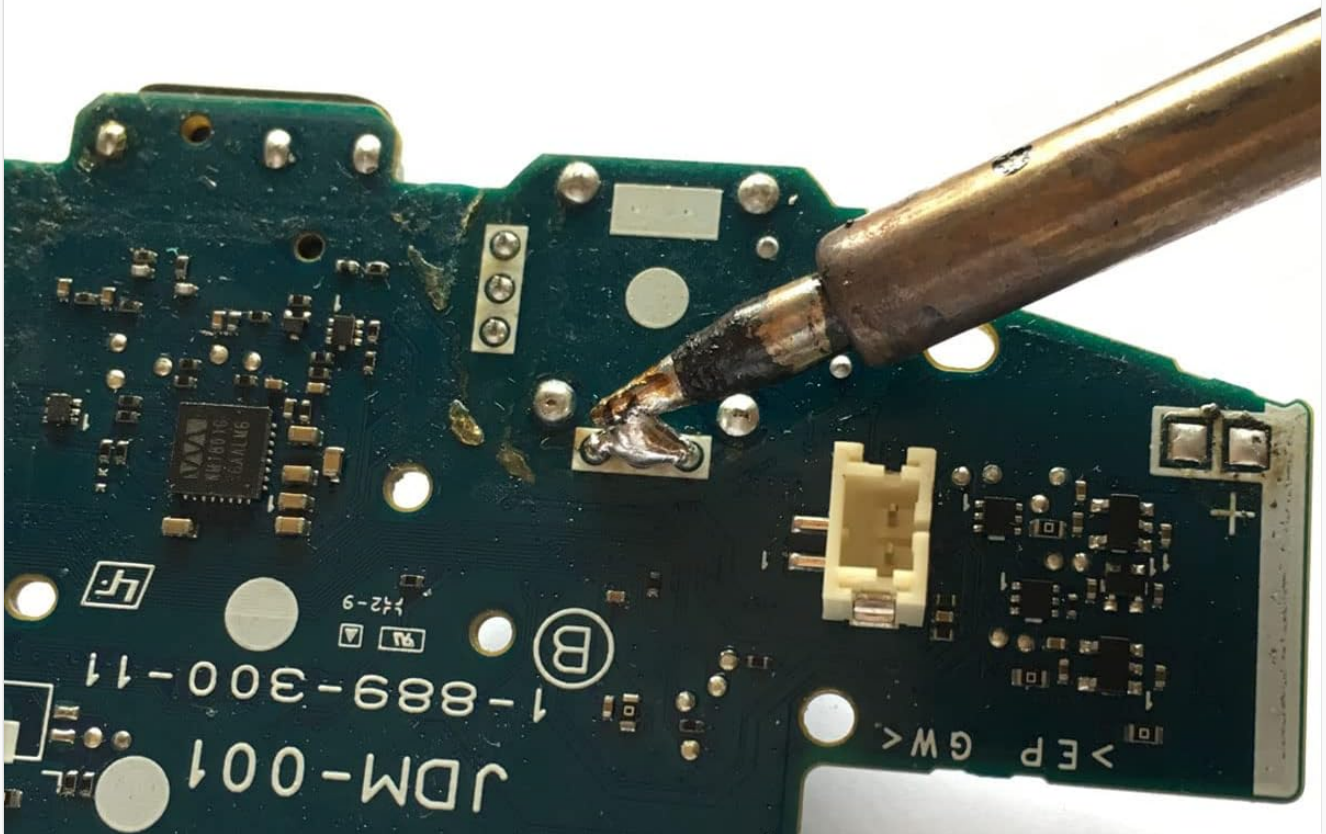


Figure 5: 3-Pin Sensor Soldering. This image demonstrates the use of a soldering iron to replace a 3-pin potentiometer sensor on a controller's circuit board, highlighting the precise soldering required for this repair.

4.5. Drift Fix PCB Installation (Optional)

The kit includes additional PCBs designed to correct persistent drift issues that may occur even with new potentiometers due to manufacturing tolerances or wear. These PCBs contain variable resistors for fine-tuning.

1. If experiencing drift in a specific direction after potentiometer replacement, identify the corresponding axis.
2. Solder the drift fix PCB onto the main controller PCB, typically in parallel with the affected potentiometer's signal lines. Refer to detailed diagrams or online resources for precise soldering points for your controller model.
3. Once installed, the variable resistor on the drift fix PCB can be adjusted to counteract the drift.

4.6. Reassembly and Calibration

1. Carefully reassemble your controller, ensuring all connections are secure and no wires are pinched.
2. After reassembly, connect your controller to your console or PC.
3. Access the controller settings or calibration utility on your device.
4. Perform a calibration of the new control sticks to ensure they are centered and respond correctly. Adjust the drift fix PCB's variable resistor if necessary during calibration to achieve optimal centering.

5. TROUBLESHOOTING

- **Joystick Still Drifting:**
 - Ensure the correct 2.1K Ω potentiometer was used. Incorrect resistance values can cause issues.

- Verify all solder joints (if applicable) are clean and secure.
 - Utilize the included drift fix PCB and adjust its variable resistor to fine-tune the stick centering.
 - Perform controller calibration through your console or PC settings.
- **No Response from Joystick:**
 - Check all connections and solder joints for continuity.
 - Ensure the potentiometer is correctly seated and not damaged during installation.
 - Confirm the controller is fully reassembled and powered on.
 - **Difficulty Removing Old Solder:**
 - Use a good quality desoldering pump or wick. Apply flux to aid in solder removal.
 - Ensure the soldering iron tip is clean and properly tinned, and set to an appropriate temperature.
 - **Controller Not Recognizing New Part:**
 - Double-check compatibility. ALPS potentiometers are not interchangeable with Favor Union versions.
 - Ensure the resistance value (2.1KΩ) matches the original part.

6. SPECIFICATIONS

Feature	Detail
Brand	ElecGear
Model Number	3PIN-Sensor
Potentiometer Type	ALPS 2.1KΩ Trim Pot Resistor
Compatible Devices	PS5 DualSense, select PS4 DualShock 4 controllers
Item Weight	Approximately 2.12 ounces (total package)
Package Dimensions	5 x 3.46 x 0.08 inches
Manufacturer	ElecGear

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Question

Example: How do I reset this device or fix this error?

Details

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

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