ElecGear HL-PS5

ElecGear HL-PS5 Hall Joystick Kit Instruction Manual

Brand: ElecGear | **Model:** HL-PS5

1. Introduction

This manual provides comprehensive instructions for the installation, calibration, and maintenance of your ElecGear HL-PS5 Hall Joystick Kit. This kit is designed as a replacement for PlayStation 5 DualSense wireless controllers, offering enhanced sensitivity and accuracy by utilizing electromagnetic Hallstick sensors to prevent stick drift.

What's Included in the Box:

- 2x Hall Joysticks
- 2x Calibration PCB
- 1x Heating Plate
- 1x Solder Wick

Note: Teardown screwdriver tools, USB input cables, wired/wireless controllers, and other soldering tools/materials are required but not included.

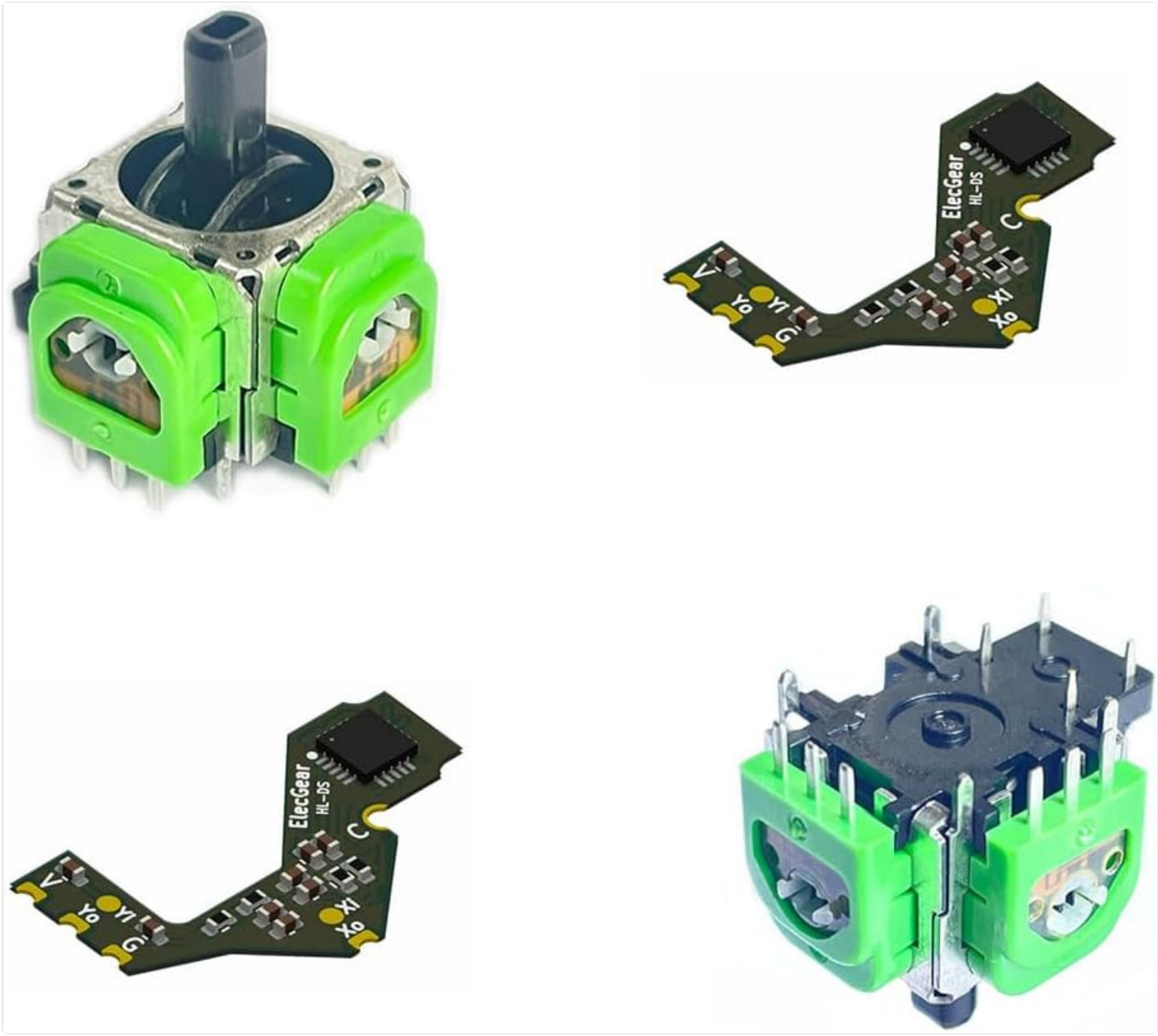

Figure 1: Components of the ElecGear HL-PS5 Hall Joystick Kit, including two Hall joysticks, two calibration PCBs, and a heating plate.

2. Compatibility and Important Reminders

- Works with DualSense PS5 controllers featuring main board versions BDM-010, BDM-020, BDM-030, and BDM-040.
- Not compatible with DualSense Edge (DSE) controllers.
- This kit does not work with DS Tools on Github due to MCU incompatibility.
- Not fully tested with some customized controllers based on DS5 (e.g., SCUF). Any added back button boards might need removal before settings.
- Installation requires serious soldering skill and appropriate devices. A soldering iron with more than 60W is necessary.
- Strictly follow the installation guide steps, as this kit involves novel and intricate procedures.

Figure 2: Illustration of compatible PS5 controller main board versions (BDM-010, BDM-020, BDM-030, BDM-040) for the HL-PS5 kit.

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Make sure your controller is original, Not from 3rd party

Model Num.	Hallstick	Calibration PCB	Desolder Plate	Original Stick	Compatible Controllers
HL-DSE		 DSE	Included	ALPS RKJXV1224	PS5 DualSense Edge with CFI-ZSM1 Stick Module
HL-PS5		 DS	Included	ALPS RKJXV1224 FU FJR10K	PS5 DualSense (BDM-010,020,030,040)
HL-PS4		 DS	Included	ALPS RKJXV1224 FU FJR10K	PS4 DualShock (JDM-001, 011, 020 030, 040, 050, 055)
HL-Xbox		 Xbox	Included	ALPS RKJXV1224	Xbox One, One S|X (1537, 1708, 1697) Xbox Series S|X - 1914 Elite Series 1 - 1698
HL-XElite2		 Xbox	Included	ALPS RKJXV1224	Xbox Elite 2 - 1797
HL-NSPro		 NSPro	Included	ALPS RKJXV1224	Nintendo Switch Pro
HL-UniA		 UniA	Included	ALPS RKJXV1224 FU FJR10K and other 3rd stick Measured 19.0 mm	Universal Controller with normal ALPS , FU and 3rd analog or hall sticks inside
HL-UniB		 UniB	Included	FU FJM10K/RST JF 3D13A1K with metal shaft Measured 20.2 mm	Some PDP, BDA PowerA, IINA and other controllers with specific analog sticks inside

Figure 3: Compatibility chart showing different ElecGear Hallstick models and their corresponding controllers. The HL-PS5 model is highlighted as compatible with PS5 DualSense (BDM-010, 020, 030, 040).

3. Setup (Installation)

The installation process involves desoldering the old joysticks and soldering the new Hall joysticks with their calibration PCBs. This requires precision and proper tools.

3.1 Hall Effect Joystick Overview

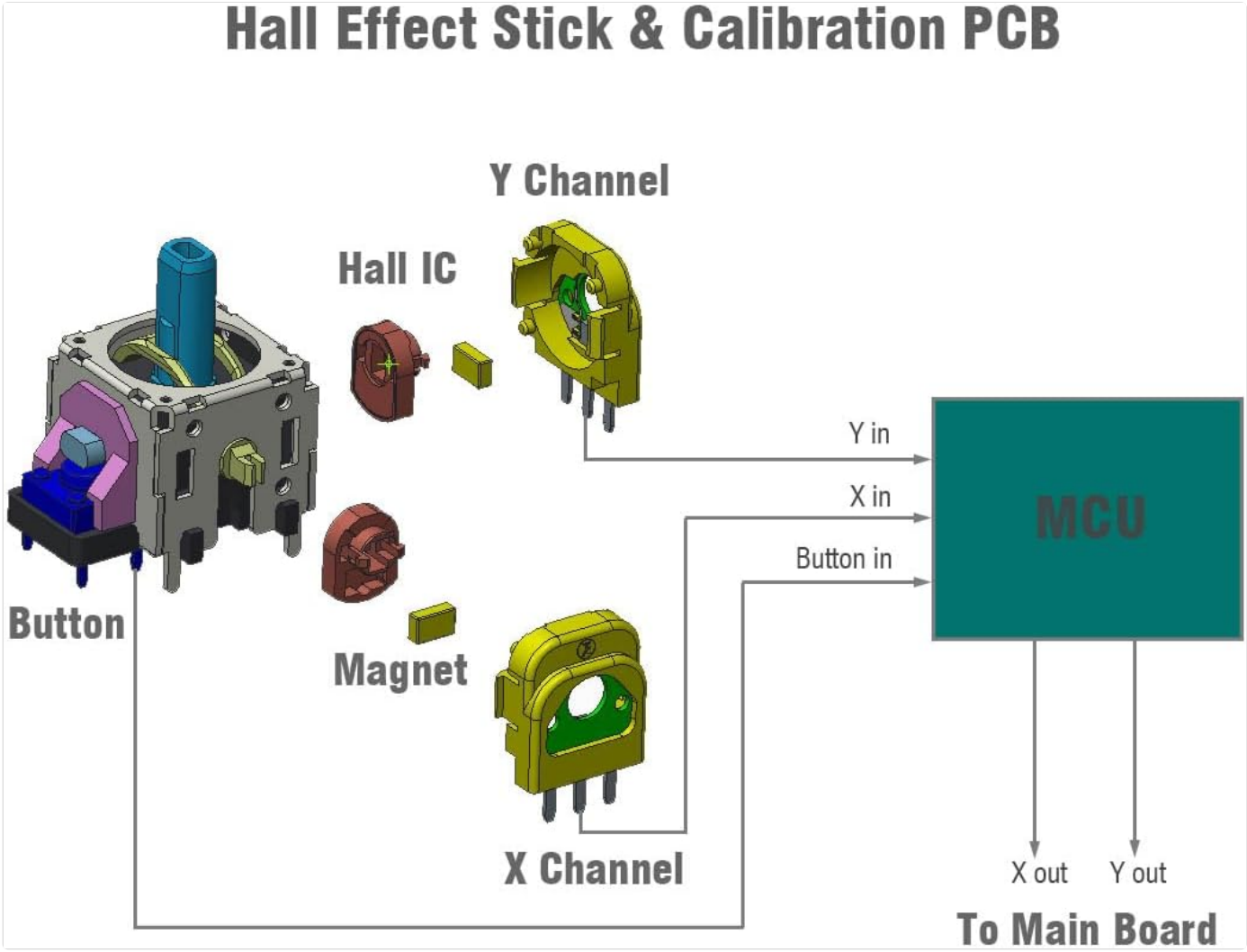

Figure 4: Exploded view diagram of the Hall Effect stick and its calibration PCB, illustrating the X and Y channels, Hall IC, magnet, and MCU connections to the main board.

3.2 Desoldering the Old Joystick

1. Resolder all 14 soldering joints of the old joystick with low-temperature solder (63/37 suggested). Make the joints slightly larger and add flux.
2. Place the copper plate onto the Teflon pad. Apply some solder to the plate and heat it up with a soldering iron. (Do not place the plate directly on the PCB).
3. Move the hot plate onto the PCB, ensuring all 14 prongs are well heated. Lift the plate and place it on again several times until the whole joystick gradually heats up.
4. Move the hot plate around to ensure all 14 prongs are well heated. You may need to add more solder to both the plate and the joints.
5. Gently pull off the joystick. It should come off smoothly once the solder is fully melted.
6. Apply flux to the joints and remove any remaining solder using solder wick.
7. Clean the PCB with pure alcohol or PCB cleaning liquid.
8. Check if the sensor's holes meet the 1.0mm standard using the solid Teflon wire. This is crucial, especially for sticks with insulated pins.

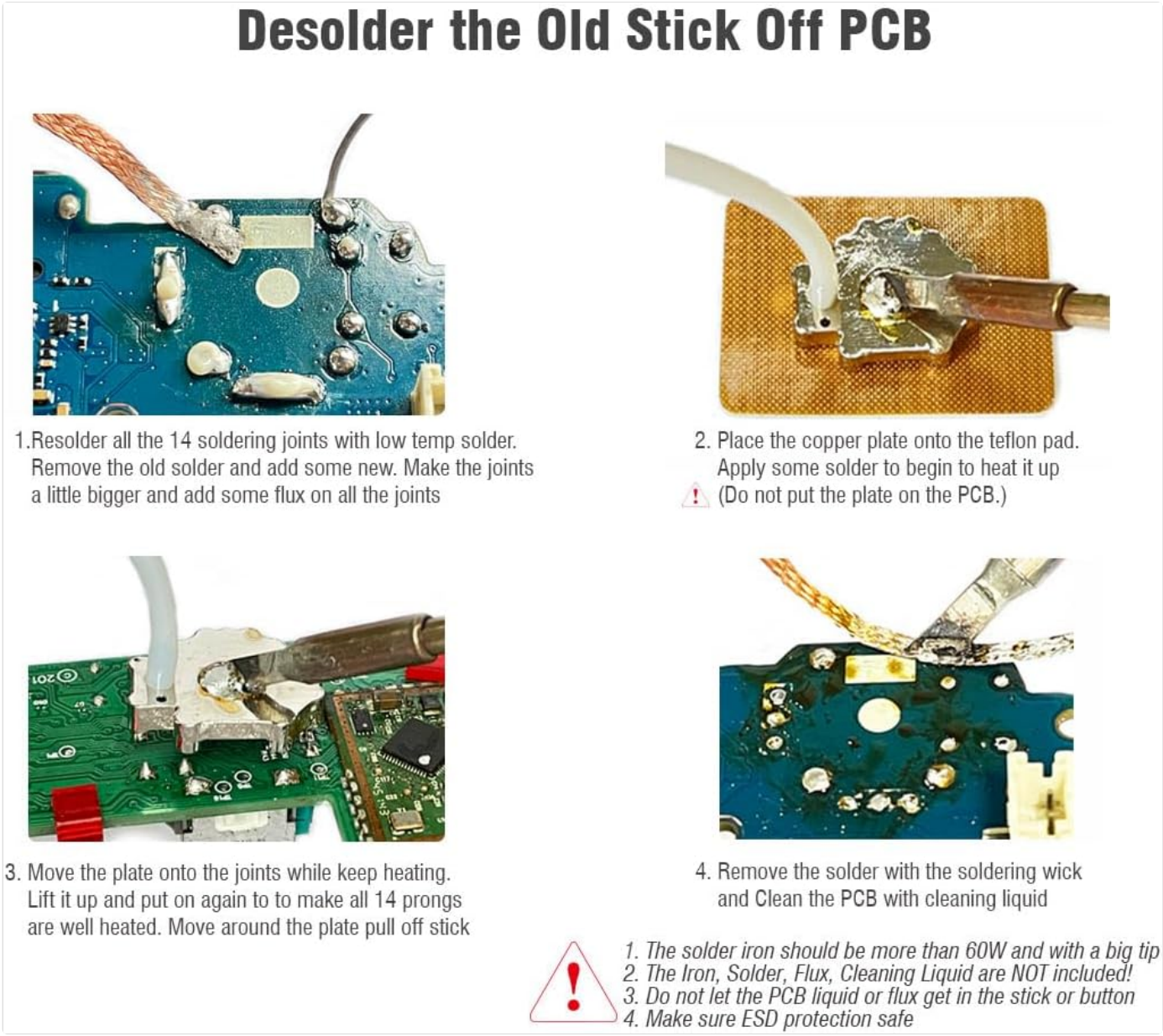

Figure 5: Visual guide for desoldering the old joystick from the PCB, showing the use of a heating plate and solder wick.

3.3 Soldering the New Hall Joystick and FPCB

Ensure the PCB holes are large enough for the joystick prongs. The new Hall joysticks come pre-insulated with blue tubes on the middle Pin2. If the blue tube is damaged or retracted, it must be replaced.

1. Solder the four biggest prongs of the new joystick diagonally to secure it.
2. Place the FPCB onto the main PCB and solder the pad C first.
3. Check if the FPCB is aligned with the joystick and main PCB.
4. Solder the Xo pad to the main PCB. Be careful not to scratch the blue tube.
5. Solder the Yo pad to the main PCB. Be careful not to scratch the blue tube.
6. Solder the V, G, and other 5 prongs.
7. Peel and twist the blue wire, then tin it.
8. Add some solder on the Xi pad and solder the wire to it. Pull the wire and lean it against Pin2, then solder them together. Cut the excess wire.
9. Repeat the process for the Yi pad.

3.4 Installation Video Guide

Your browser does not support the video tag.

Video 1: Detailed guide on desoldering, soldering, and calibration for the ElecGear PS5 Hall Kit Joystick. This video covers the entire installation process.

4. Operating (Calibration)

After installation, the new Hall joysticks require calibration to ensure optimal performance and accuracy. This process involves using a gamepad tester webpage or application.

1. Open a gamepad tester webpage (e.g., hardwaretester.com/gamepad) or a suitable testing application.
2. Fully tilt the joystick to its largest angle and then plug in the USB cable to connect the controller.
3. **Setting Mode A:** The dot on the tester will jump at 4 poles. Rotate the stick 3 or 4 circles at the maximum angle.
4. Press the button to save the data. Release the thumbstick cap. Do not touch the stick while it's reading the physical center.
5. Unplug the USB cable to power off the controller.
6. Power on the controller again to check its functionality.
7. **Setting Mode B:** Press down the button and do not release it, then power on the controller. This mode shows the center of the stick. Re-set it by pushing the stick up or down, left or right.
8. Press the button to confirm the new center point. The dot will jump to the first pole. Push inward to shrink the range.
9. Set the value to 1.00000 and press the button to save the data. It will jump to the second pole. Repeat for all four poles.
10. Unplug the USB cable when the dot remains still at the center. The setting is complete.
11. Check the track of clockwise and counterclockwise rotation to ensure it reaches the circle everywhere. Verify the center is accurate and check performance at 45 degrees.
12. You can re-enter Setting Mode B to add more steps after 1.00000 or remove steps on any pole to customize the outer range. This fine-tuning can be beneficial for certain games.

5. Maintenance

Regular cleaning of the PCB after soldering is recommended to remove flux residue. Use pure alcohol or a dedicated PCB cleaning liquid with a cotton swab.

6. Troubleshooting

If you encounter issues after installation, perform the following checks:

- **Check Connections:** Use a multimeter to verify all connections.
- **X Sensor Input:** The X sensor inputs the signal to MCU Pin11.
- **MCU X Output:** The MCU outputs the processed signal from Pin18.
- **RC Filter Resistance:** The resistance of the second-order RC filter should be 6.6KΩ or 2.0KΩ.
- **FPCB to Main PCB Connection:** Ensure the Xo of the FPCB is correctly connected to the Xo of the main PCB.

- **Short Circuits:** Verify that Xi and Xo are not short-connected.
- **Y Sensor Input:** The Y sensor inputs the signal to MCU Pin3.
- **MCU Y Output:** The MCU outputs the processed signal from Pin7.
- **Missing Components:** Ensure no soldering joints are missing and no onboard electronic components are missing.
- **MCU Pad Damage:** If problems persist after all attempts, consider that the MCU pad may be damaged due to folding or soldering.

7. Specifications

Feature	Detail
Brand	ElecGear
Model Name	HL-PS5
Compatible Devices	Gaming Console (PS5 DualSense Controller)
Controller Type	Gamepad
Connectivity Technology	USB
Item Weight	1.41 ounces
Package Dimensions	2.91 x 2.72 x 0.75 inches

8. Warranty and Support

For warranty information or technical support, please refer to the official ElecGear website or contact their customer service directly. Keep your proof of purchase for any warranty claims.

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

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.

Submit question