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# Installation Guide & User Manual

## TMR Electromagnetic Joystick Upgrade Kit for PS5 Controller

### (No-Drift Hall Effect Replacement)

#### 1. Package Contents

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- 1 Pair** x TMR Electromagnetic Joystick Modules (Left & Right)
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- 1 Set** x Installation Tools (Screwdrivers, Pry Tools, Tweezers)
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- 1 pc** x Alcohol Prep Pad / Cleaning Cloth
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#### 2. Key Advantages

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- True No-Drift:** Utilizes TMR (Tunnel Magnetoresistance) technology. Unlike potentiometers, there are no physical contacts to wear out, eliminating stick drift forever.
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- Higher Precision:** Offers superior accuracy and a wider range of motion compared to standard Hall Effect sticks.
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- Low Power Consumption:** TMR sensors consume less power than traditional Hall sensors, preserving your controller's battery life.

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**Plug-and-Play:** Calibration is usually handled by the controller firmware; most kits work instantly after installation.

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### 3. Compatibility Check

 **CRITICAL:** Please verify your PS5 Controller model number before installation.

This kit is compatible with:

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**BDM-010 / BDM-020 / BDM-030 / BDM-040 / BDM-050**

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*How to check:* Look at the sticker inside the battery compartment of your controller.

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### 4. Installation Steps

 **IMPORTANT SAFETY WARNING:**

Electromagnetic sensors are extremely sensitive to **Electrostatic Discharge (ESD)**. Always touch a grounded metal object (like a water pipe or PC case) before handling the modules to discharge static electricity. Failure to do so may permanently fry the chip.

| Step | Action                                                                                                                                    |
|------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <b>Power Off:</b> Ensure the controller is turned off and disconnected from the console/PC. Remove the battery pack.                      |
| 2    | <b>Disassemble:</b> Use the provided screwdriver to remove the back shell screws. Carefully pry open the controller housing.              |
| 3    | <b>Disconnect Ribbon:</b> Gently disconnect the main flex cable connecting the front touchpad to the motherboard.                         |
| 4    | <b>Remove Old Stick:</b> Desolder the old analog stick pins from the motherboard using a soldering iron. Clean the pads with solder wick. |

| Step | Action                                                                                                                                       |
|------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 5    | <b>Install New Stick:</b> Align the TMR module pins with the motherboard holes. Solder them carefully. Ensure no pins are bridged (shorted). |
| 6    | <b>Reassemble:</b> Reconnect all cables, close the shell, and tighten screws.                                                                |

## 5. Calibration & Testing

After installation, you need to test the stick range.

Connect the controller to your PS5 or PC.

Go to **Settings > Accessories > Controllers > Test Controller**.

Check if the cursor moves smoothly in a full circle without dead zones.

*Note:* If the stick does not center correctly, gently adjust the physical position of the module on the board and resolder.

## 6. Troubleshooting

| Issue                                   | Solution                                                                                                             |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Stick not recognized / Red Light</b> | Check for cold solder joints. Reheat the pins to ensure they are firmly connected to the pads.                       |
| <b>Erratic Movement / Jitter</b>        | Static damage likely occurred. Ensure you are grounded next time. Replace the module.                                |
| <b>Direction Inverted</b>               | The module orientation might be wrong. Ensure the sensor chip faces the correct direction as per the original stick. |
| <b>Too Stiff / Too</b>                  | Swap the plastic thumbstick caps from your original                                                                  |

| Issue | Solution                         |
|-------|----------------------------------|
| Loose | controller onto the new modules. |

## 7. Technical Specifications

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**Sensor Type:** TMR (Tunnel Magnetoresistance)

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**Operating Voltage:** 3.3V DC

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**Lifespan:** > 5 Million Cycles

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**Dead Zone:** < 0.5% (Effectively Zero)

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