

## Digital Pot Adapter

Use modern Hall Effect throttles with your legacy resistive-throttle motor controllers

### WIRING / CONNECTIONS

- **12V and Gnd:** The red and black wires are the power supply for the DPA. The 12V supply should be switched on with the key to avoid quiescent power consumption.
- **5V, Gnd, Level:** These three wires connect to your hall effect throttle device, with the 5V output supplying power and *Level* returning the throttle signal.
- **Outputs:** These provide a physical resistance ranging from 0 to 5kΩ. Due to the nature of digital potentiometers, the output resistance is polarised, i.e it will only work correctly in one of the two wiring orientations – though nothing will be damaged if the wiring is incorrect. If your DPA doesn't work first time, try reversing the throttle wires on your controller.

If your throttle device already has a 5V power supply (such as some HEPA pedals), you can leave the 5V wire from the DPA disconnected, but ensure that the grounds are joined together.

### INTRODUCTION

Many motor controllers require a 0–5kΩ variable resistance for their throttle signal, historically achieved with a potentiometer. However these mechanical devices tend to wear out over time and become unreliable, so many electric vehicles are migrating to Hall Effect throttle devices, which are non-contact and offer virtually unlimited lifespan.

In order to use Hall Effect throttles with controllers requiring a resistive throttle signal, ZEVA developed the Digital Pot Adapter (DPA), a solid state device which accepts a 0-5V input and converts it to a galvanically-isolated 0-5kΩ variable resistance.

### SPECIFICATIONS

- Power supply: 6-20V (12V nominal)
- Available for 0-5V or HEPA throttle types
- Galvanically isolated input and output
- Outputs: 0-5kΩ resistance, polarised
- Dimensions: 51x27x8mm

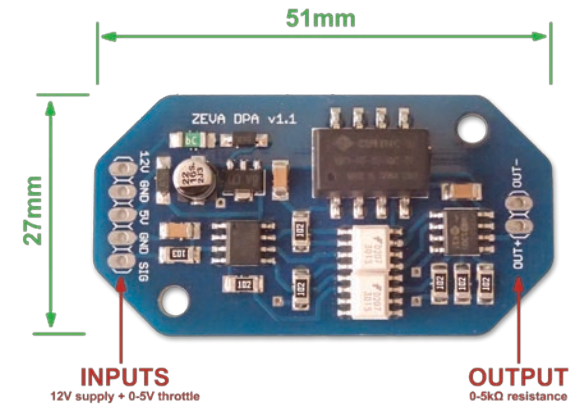
### INSTALLATION LOCATION

The DPA is best installed close to the throttle device, rather than close to the controller, where EMI noise is typically higher. There are two 3.2mm holes which may be used to mount the device.

The board is also compact enough to be mounted inside some throttle box housings, an ideal location which provides EMI shielding, some weatherproofing, and minimum extra wiring.

In rare cases, EMI noise in the engine bay may interfere with the DPA's behaviour. If so, try moving the DPA further from the motor, controller and/or power wiring. You can also use shielded cabling and/or a metal shield around the device itself.

### TOP VIEW



### THROTTLE RAMP

This device is available with different internal throttle scaling to suit either full-range 0–5V input, commonly found with Hall Effect “potboxes”, or 0.5–3.5V, to suit many common HEPA pedals. In both cases the output resistance gets scaled to 0–5kΩ for 0–100% throttle range.

### TECHNICAL SUPPORT

If you have any queries not covered by this manual, feel free to contact us via our website: [www.zeva.com.au](http://www.zeva.com.au)

Products are covered against manufacturing faults for a period of 12 months from date of purchase. If you believe your device may be faulty, please contact us for RMA information.

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