RobotMad Hex-Drive

A Motor and servo drive hexpansion for the EMF Badge.

Featuring:

3 power source options

2 Motor drivers

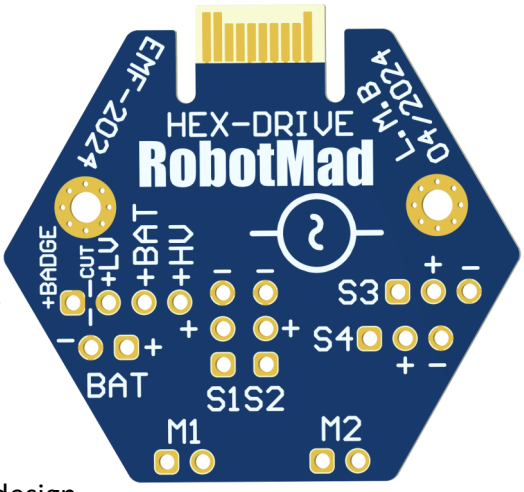
Up to 4 servo outputs

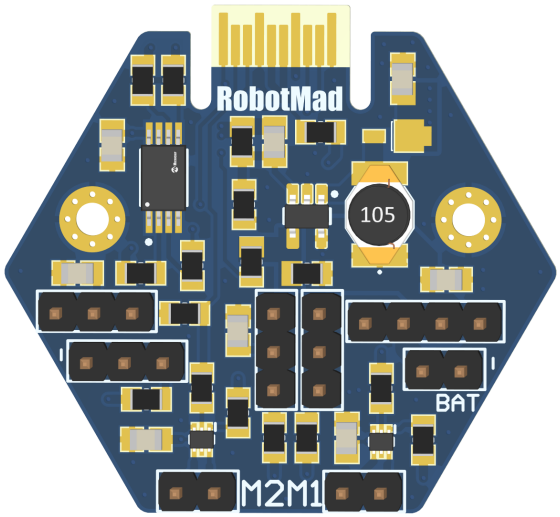
Adjustable 5V power supply

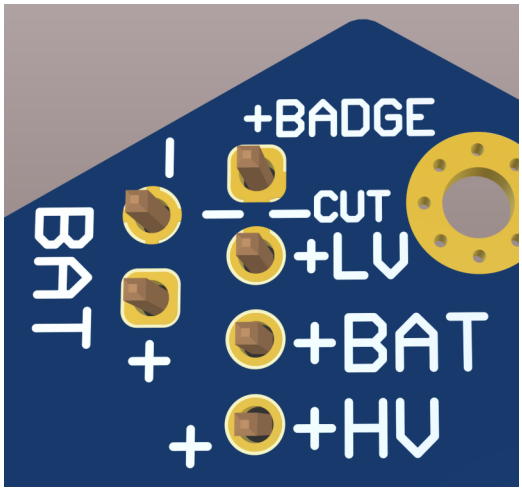
(max 12v)

64K bit EEPROM

Easy to modify 0805 based design







Power Options

The Hex-Drive supports badge supplied power, 1 cell external battery, or 2 cell external battery.

Badge power is selected by default using a copper track on the back of the board.

To select an external power source, the track between +BADGE and +LV must be cut carefully along the line indicated “CUT” between the white marked lines.

Then using header pins and a jumper connect +BAT to +LV for a 1 cell battery, or +BAT to +HV for a 2 cell battery. The battery should be connected to the BAT pins just to the side of the selector pins. TAKE CARE ABOUT POLARITY

You can return to Badge supplied power by connecting +BADGE to +LV again.

Motors and Servos

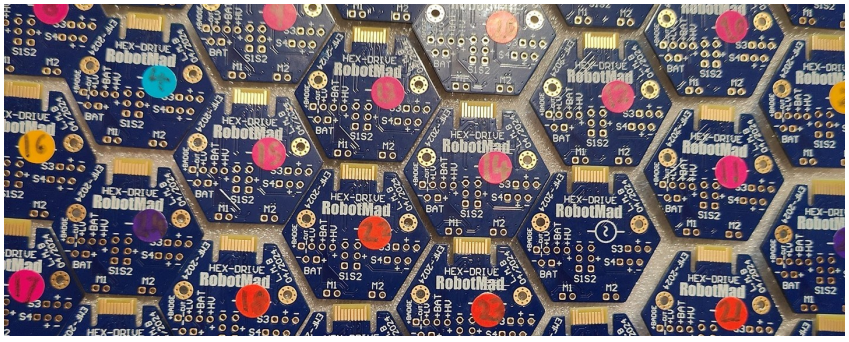
There are 2 separate motor drivers and outputs. M1, M2.

4 servo outputs, S1, S2, S3, S4.

All of these outputs accept standard 2.54mm pitch header pins

To use a servo you have to not be using its corresponding motor. S1 and S2 correspond to M1, S3 and S4 correspond to M2.

If only using motors, it is beneficial to add some large though hole capacitors to the board using the servo power connection



Adjustable Power supply

The power supply is adjustable by changing the feedback voltage divider resistors R1 and R2. we recommend only changing R2, changing C2 and C3 is recommended when changing voltage. Additional capacitors added to power points on the board is always beneficial to voltage stability.

When on badge power current limit is 300mA at 5V.

On single cell lipo, max current is 900mA

Below is values for 5V (default), 6V and 12V.

Vout	R2	C3	C2
5	30k	1.8nF	22uF
6	37.4k	1.5nF	30uF
12	86.6k	560pF	47uF