3A Back EMF H-Bridge Datasheet
S11-3A-EMF-HBRIDGE

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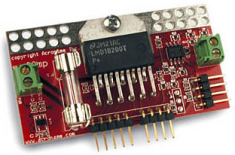
Acroname Robotics
www.acroname.com



Specifications

This H-Bridge component is a convenient way to control motors or other high-current loads. This H-Bridge component also incorporates an Acroname designed Back-EMF measurement circuit that allows you to actually discern the speed of the motor you are driving without an encoder! This enables you to use this component to drive motors from toys, cars, or other places where speed control was not possible before. There are three main forms of motor feedback supported with this component.

Feedback Modes	
Back-EMF:	This mode is the default jumper selection on the board and requires a specific timing sequence to operate a motor and take feedback measurements simultaneously.
Current Sensing:	This mode is selectable through a soldered jumper and allows the current used by the motors to be read as an analog value with 1 Volt/Amp of current.
Quadrature Encoder:	This mode is independant of the other two and can therefore be used simultaneously with either provided the correct I/O control is used. Two channels of encoder input are passed through, allowing quadrature inputs. These inputs have built-in 3.3 kÎ© pullup resistors.

National 18200 H-Bridge

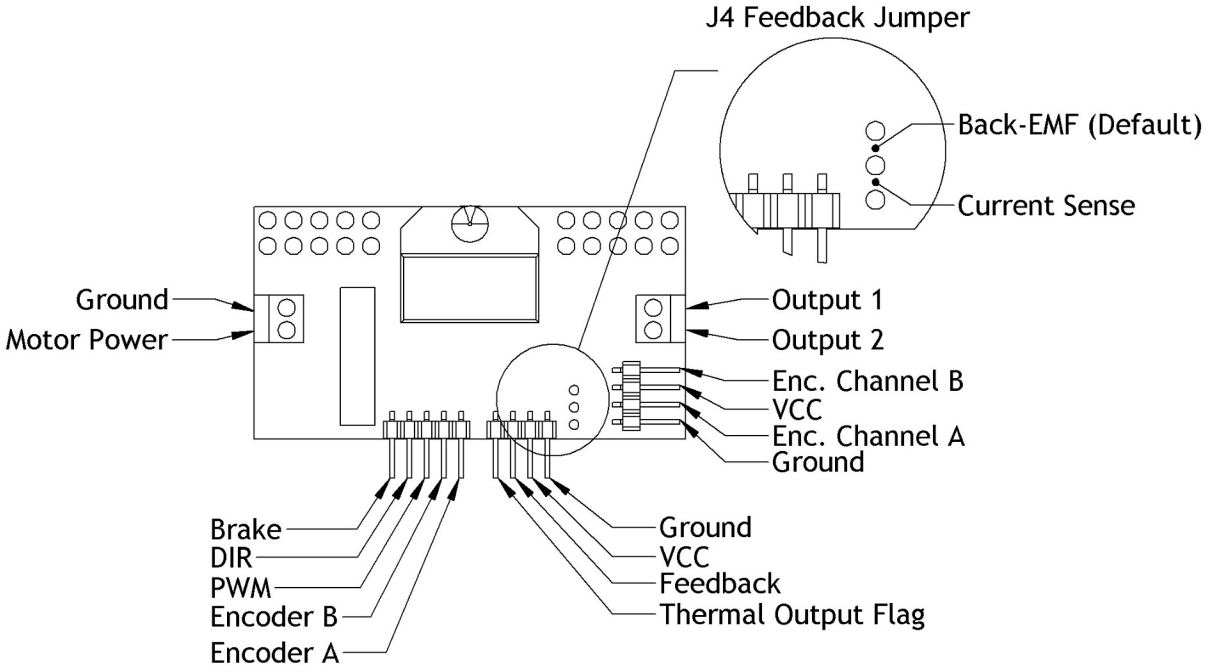
The bridge is based on the National 18200 H-Bridge chip so it has very low on resistance (0.4 Î©), and can handle currents of 3 Amps continuously and as much as 6-Amps surge. It also has a built in 3.15 A fuse (easily replaced) and incorporates separate power supply inputs for the motors. One extra fuse is included with the module. Charge-pump capacitors are also included to offer higher PWM speeds and therefore greater motor efficiency.

H-Bridge Standard

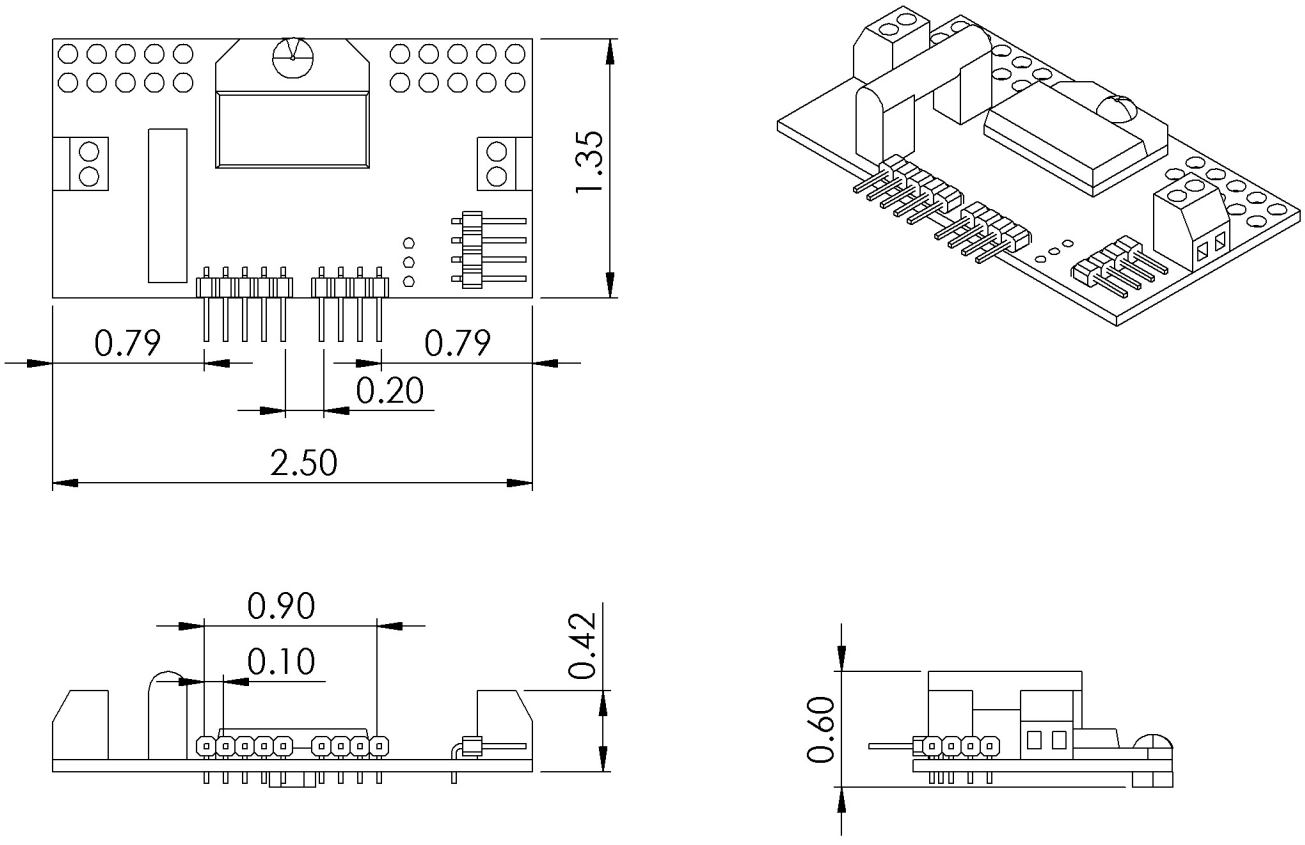
The pinout for this H-Bridge component conforms to the Acroname H-Bridge Standard so it works well with any device that conforms to this standard. An encoder header is built into the bridge to allow quadrature encoder inputs to be plugged directly into this bridge component and passed through to the standard header. 3.3 kÎ© pullups are included.

Recommended and Absolute Ratings			
	Min	Typ	Max
Motor Voltage	12 V	12 V	27.5* V
Continuous Motor Current	0 A	N/A	3 A
Surge Motor Current	0 A	N/A	6 A
PWM Frequency	0 Hz	39,000 Hz	500,000 Hz
Logic Supply Voltage	4.5 V	5 V	5.5 V

- * Note: The H-Bridge can handle up to 55V, but an instantaneous change of direction can cause a 2x voltage swing, so the effective max is 27.5V.



Pin Out Diagram



Dimensions are in Inches