

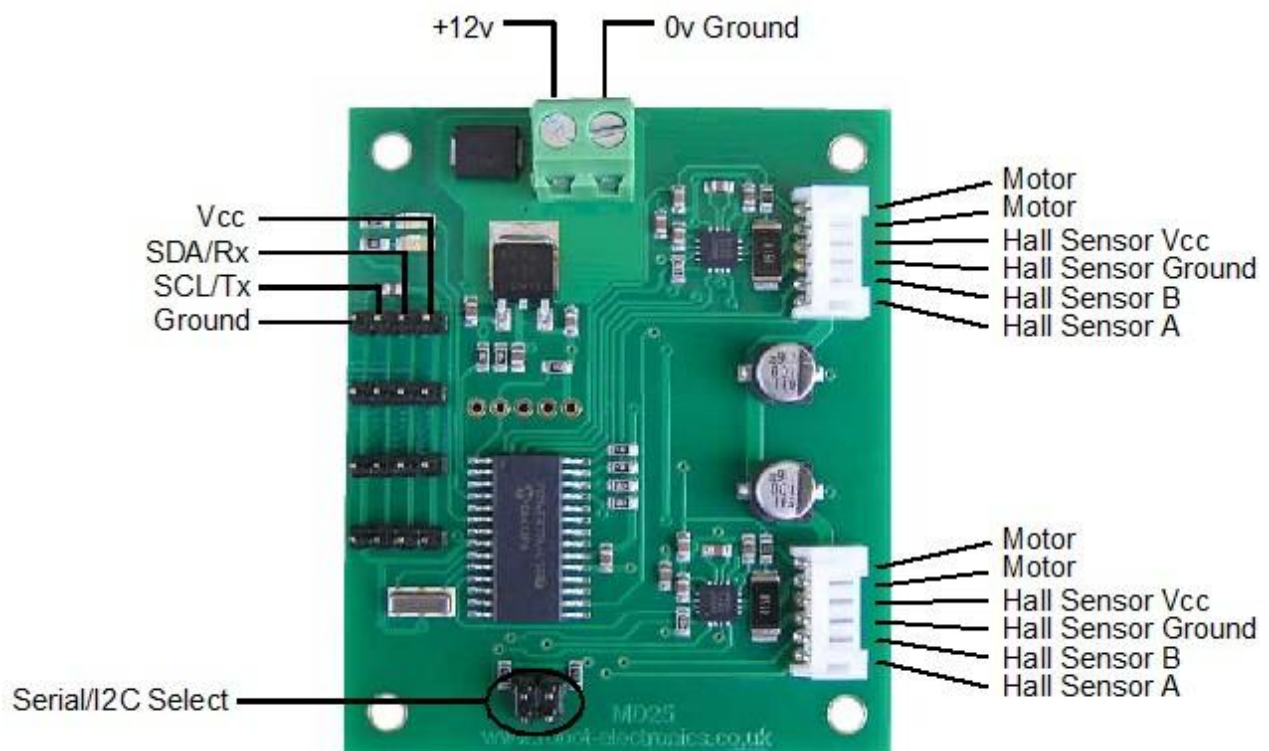
MD25 - Dual 12Volt 2.8Amp H Bridge Motor Drive

Overview

The MD25 is a robust I2C or serial, dual motor driver, designed for use with our EMG30 motors. Main features are:

1. Reads motors encoders and provides counts for determining distance traveled and direction .
2. Drives two motors with independent or combined control.
3. Motor current is readable.
4. Only 12v is required to power the module.
5. Onboard 5v regulator can supply up to 1A peak, 300mA continuously to external circuitry
6. Steering feature, motors can be commanded to turn by sent value.
7. Variable acceleration and power regulation also included

Connections



Jumper Selection



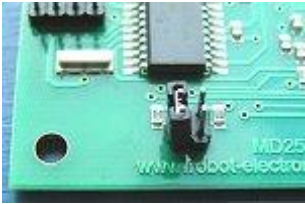
I2C mode with no jumpers installed, up to 100 khz clock.

[Full Details of I2C Mode is here](#)



Serial mode at 9600 bps, 1 start bit, 2 stop bits, no parity

[Full Details of Serial Mode is here](#)



Serial mode at 19200 bps, 1 start bit, 2 stop bits, no parity

[Full Details of Serial Mode is here](#)



Serial mode at 38400 bps, 1 start bit, 2 stop bits, no parity

[Full Details of Serial Mode is here](#)

Motor Voltage

The MD25 is designed to work with a 12v battery. In practical terms, this means the 9v-14v swing of a flat/charging 12v battery is fine. Much below 9v and the under-voltage protection will prevent any drive to the motors.

Motor Noise Suppression

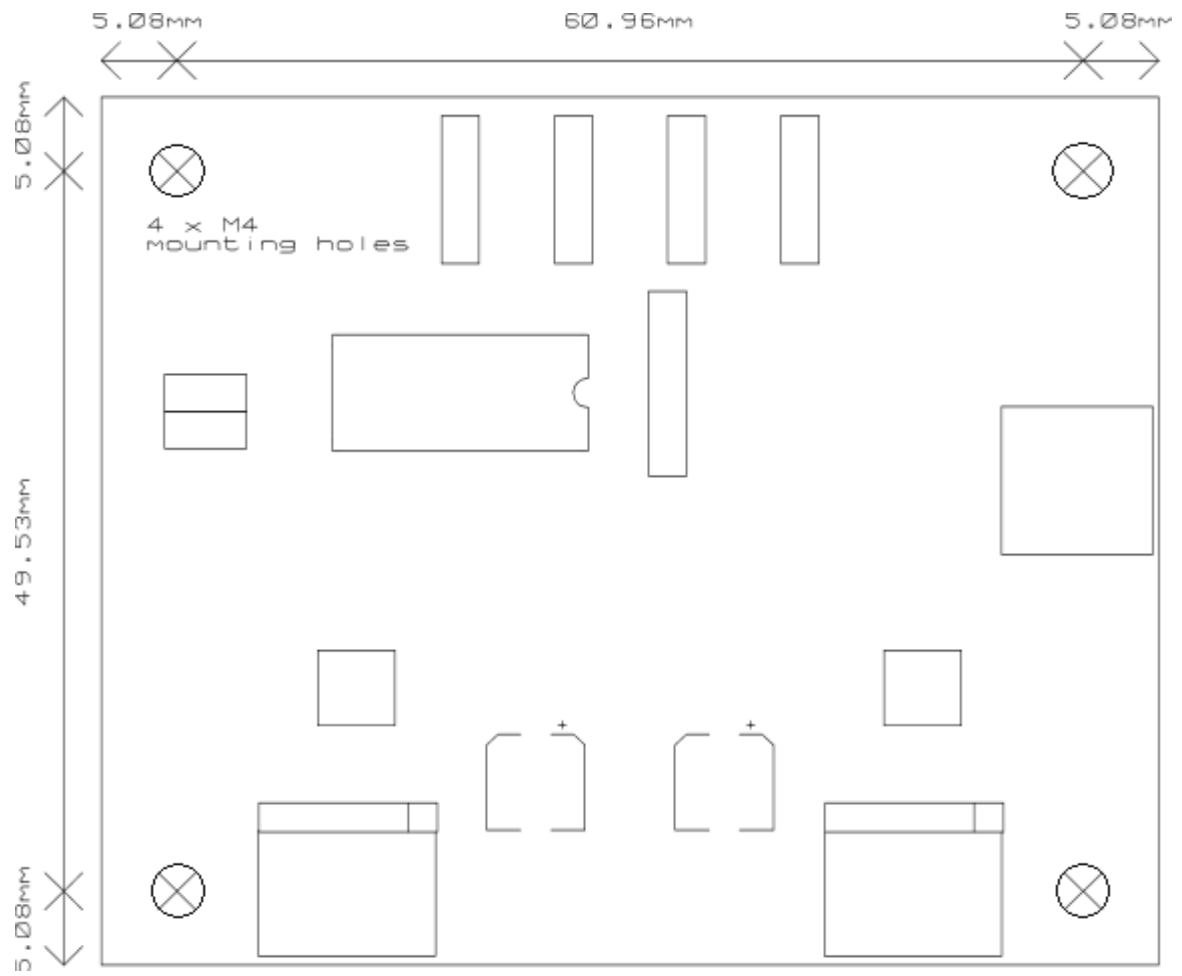
When using our EMG30 encoded motors, you will find that a 10n noise suppression capacitor has already been fitted. Other motors may require suppression. This is easily achieved by the addition of a 10n snubbing capacitor across the motors. The capacitor should also be capable of handling a voltage of twice the drive voltage to the motor.

LEDs

The Red Power Led indicates power is applied to the module.

A Green Led indicates communication activity with the MD25. In I2C mode the green led will also initially flash the address it has been set to. See I2C documentation for further details.

Board dimensions

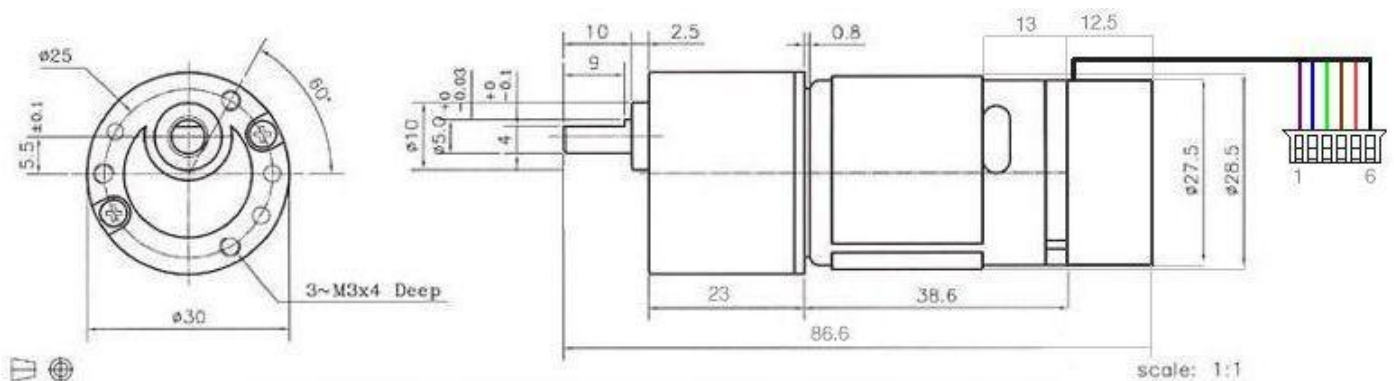


EMG30, mounting bracket and wheel specification



The EMG30 (encoder, motor, gearbox 30:1) is a 12v motor fully equipped with encoders and a 30:1 reduction gearbox. It is ideal for small or medium robotic applications, providing cost effective drive and feedback for the user. It also includes a standard noise suppression capacitor across the motor windings.

Measurements



Connector

The EMG30 is supplied with a 6 way JST connector (part no PHR-6) at the end of approx 90mm of cable as standard.

The connections are:

Wire colour	Connection
Purple (1)	Hall Sensor B Vout
Blue (2)	Hall sensor A Vout
Green (3)	Hall sensor ground
Brown (4)	Hall sensor Vcc
Red (5)	+ Motor
Black (6)	- Motor

Wire colours are from the actual cable.

The hall sensors accept voltages between 3.5v and 20v.

The outputs are open collector and require pull-ups to whatever signal level is required.

On the MD25 they are powered from 12v and pulled up to 5v for the signals.

specification

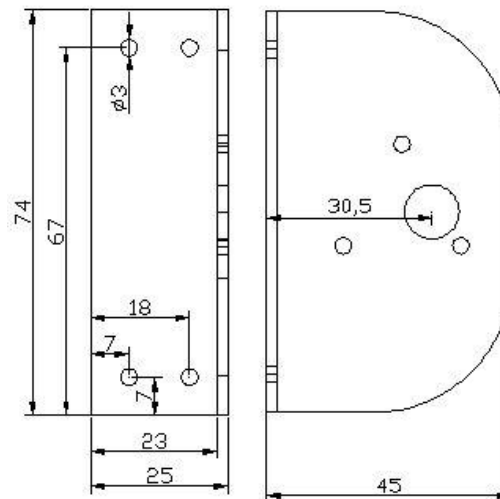
Rated voltage	12v
Rated torque	1.5kg/cm
Rated speed	170rpm
Rated current	530mA
No load speed	216
No load current	150mA
Stall Current	2.5A
Rated output	4.22W
Encoder counts per output shaft turn	360

Measured Shaft Speed when used off-load with MD23 and 12v supply.

Minimum Speed	1.5rpm
Maximum Speed	200rpm

EMG30 Mounting Bracket

Providing easy mounting of the EMG30 to the robot, the bracket is made from a 2mm thick strong aluminum and finished in blue enamel.



Wheel 100

A 100mm diameter wheel with 5mm diameter hub for easy attachment to the EMG30, the wheel has a 26mm wide rubber tread

