HUB-ee BMDS 6020 Datasheet

Powered wheel hub with sensors and motor driver.

Technical Specifications:

No load speed @7V:

120:1 Gear Ratio:	170 RPM (+/- 10%)
180:1 Gear Ratio:	120 RPM (+/- 10%)

Motor Current @7V:

Stall:	950mA
No Load	100mA

Maximum operating voltage range:	3.5-13.5V
Recommended operating range:	4.0-9.0V

Warning – the motors are rated for 7V, operating the motors above their rated voltage can significantly reduce their life span and cause excessive heat – we do not recommend continuous operation at voltages greater than 9V

Logic input range:	3.0-5V
Sensor Output voltage (Logic high):	3.3V

Quadrature encoder: 32 stripe sensor with 3.3V logic outputs for Channel A and B - Max 128 counts per revolution.

Physical Dimensions:

Width	20mm
Diameter (With tyre)	60mm
Diameter (Without tyre)	55mm
Distance between mounting holes	24mm
Mounting thread	M3 or 4/40

Control

Motor control signals

IN1	IN2	PWM	Standby*	Result:
H	H	H/L	H	Stop - Brake
L	H	H	H	Turn Forwards
L	H	L	H	Stop - Brake
H	L	H	H	Turn Backwards
H	L	L	H	Stop - Brake
L	L	H/L	H	Stop – No Brake
H/L	H/L	H/L	L	Standby

*Standby is active LOW and has a pull up resistor - All other inputs have pull down resistors. Standby can be left unconnected for normal operation.

Connector pins
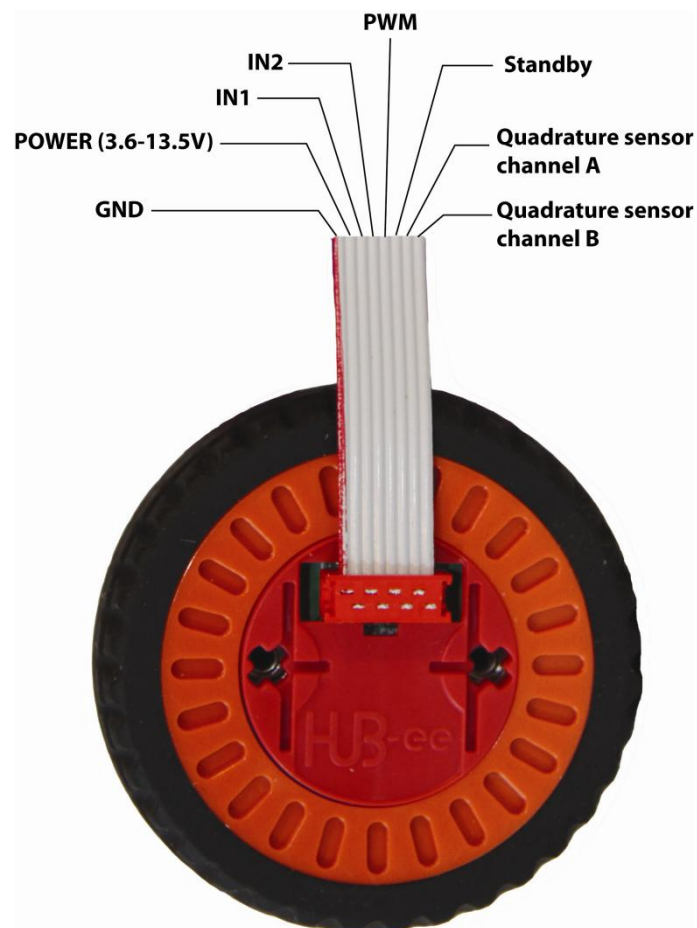
Fixing

Each wheel has a pair of metal threaded inserts inside so you can bolt it onto things securely; these will either have a metric M3 thread, or an imperial 4/40 thread. These can be removed and replaced if desired. The bolt holes are also designed to accept the tip of a LEGO axle. A LEGO axle can be threaded through the entire body if the metal inserts are removed.

The threaded inserts are 8mm long and sit in the centre of the wheel. Any screw you use has to go in 6mm deep before it will engage with the thread – for example, if you want to bolt the wheel to a 3mm thick piece of plastic then you are going to need a screw that is around 12mm long.

Beware of over tightening any mounting screws – this can cause internal damage.

Each wheel also comes with an angle bracket designed to make it easy to attach to a flat chassis. It has a pair of slots to retain M3 nuts.
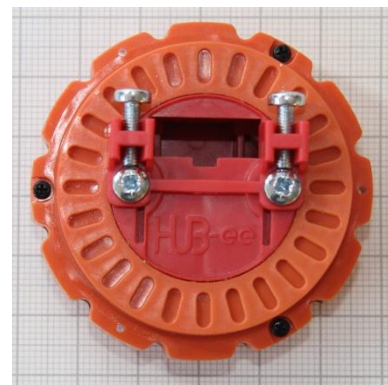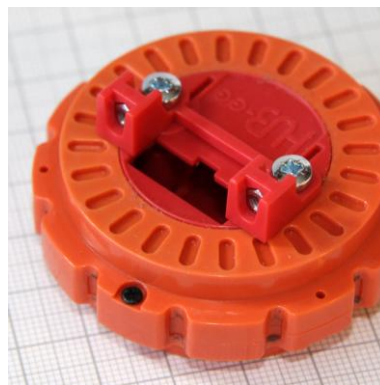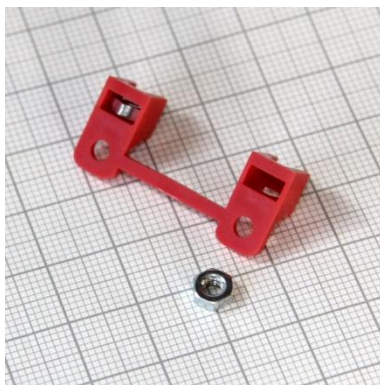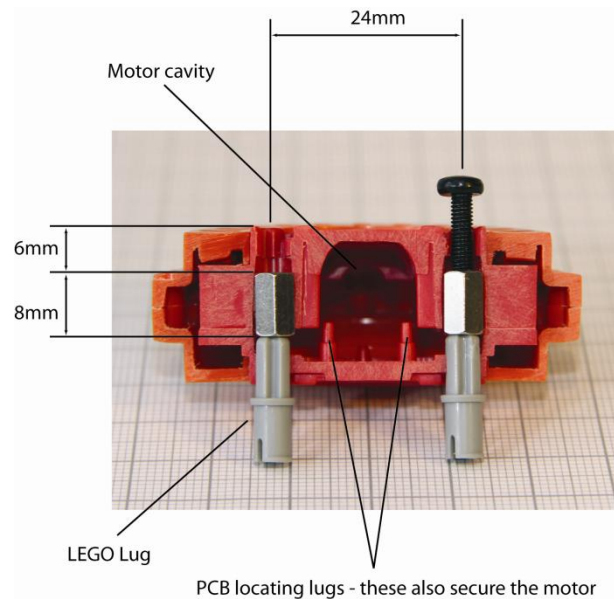
Warning: Prolonged exposure to direct sunlight can affect the colour of the plastic parts.