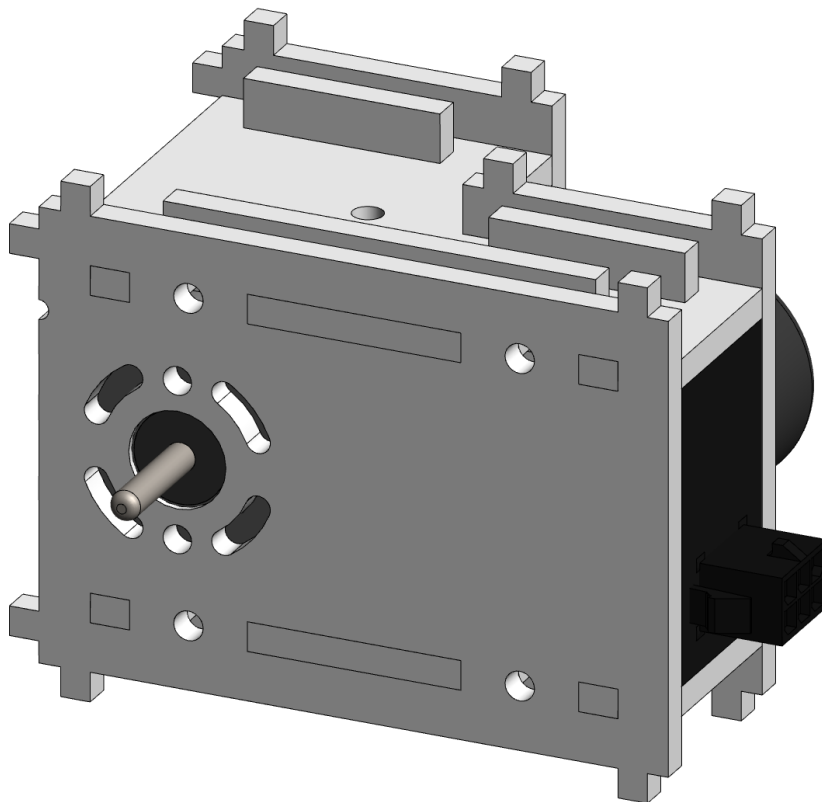
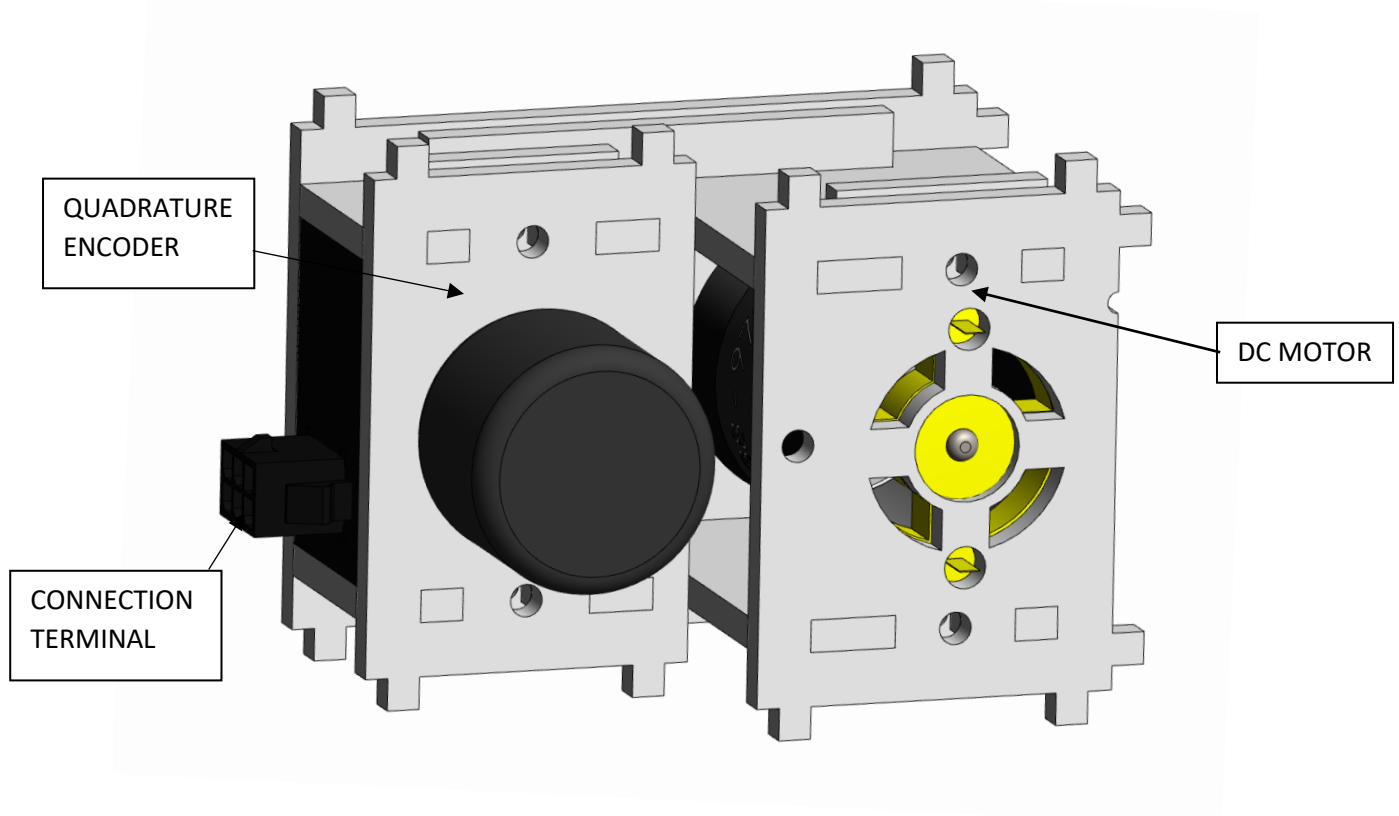


# The Embedded Systems Project: Motor Module User Guide



## What Is the Motor Module?

The motor module consists of everything needed to actuate a robot with mm precision. It consists of a DC motor, a quadrature encoder and a connection terminal for reliable interfacing to a microcontroller.



## Electrical Specifications

	Voltage Rating	Current Rating	Other Information
DC Motor	6-15V	1.4 A	Max current is 1.8 A but motor will get hot
Quadrature Encoder	5V	20 mA max consumption	3 Channel (2 useable A/B, index CH inside module)  256 counts per revolution
Connection Terminal	250 V	5 A max per connection	

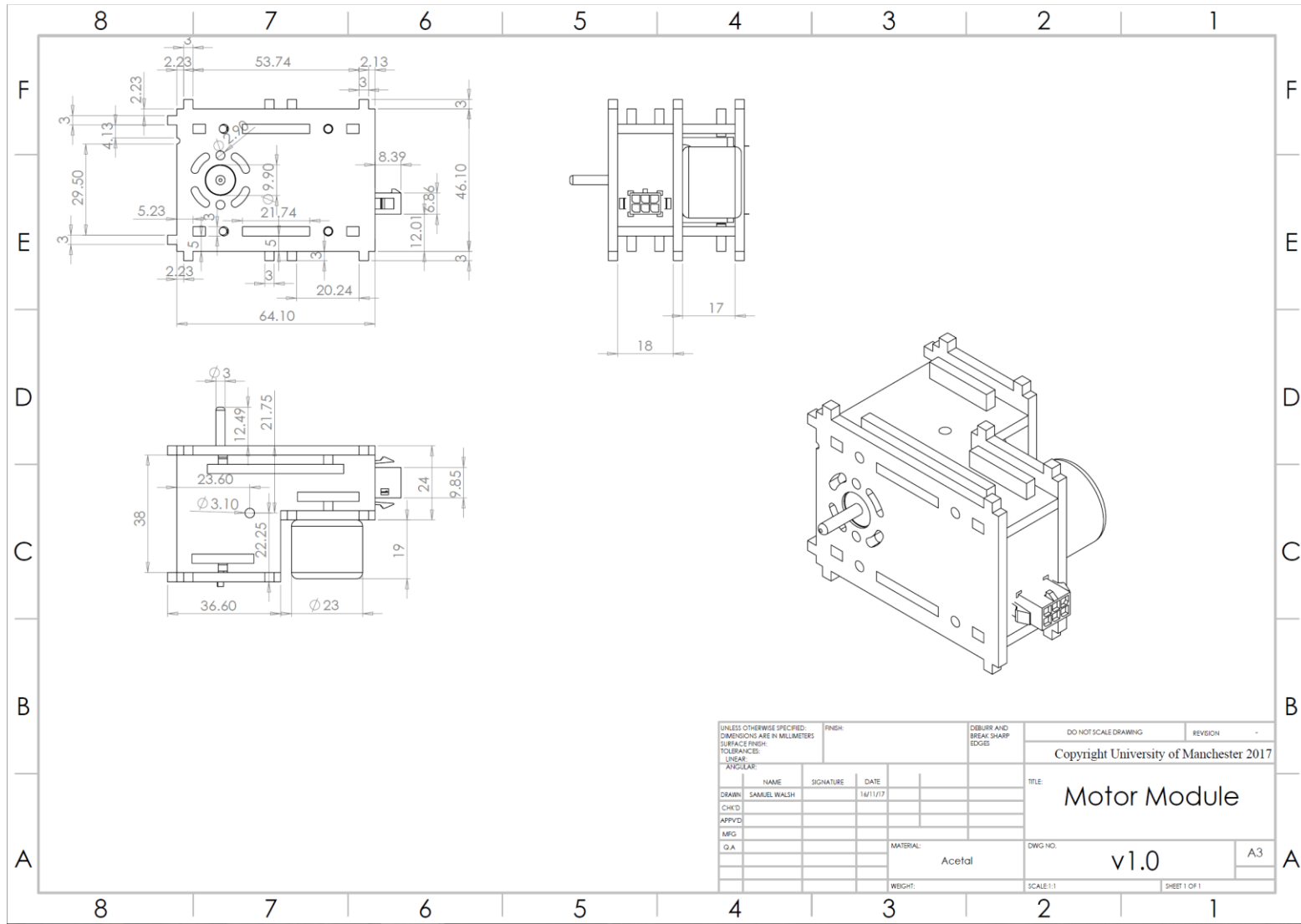
## Component List

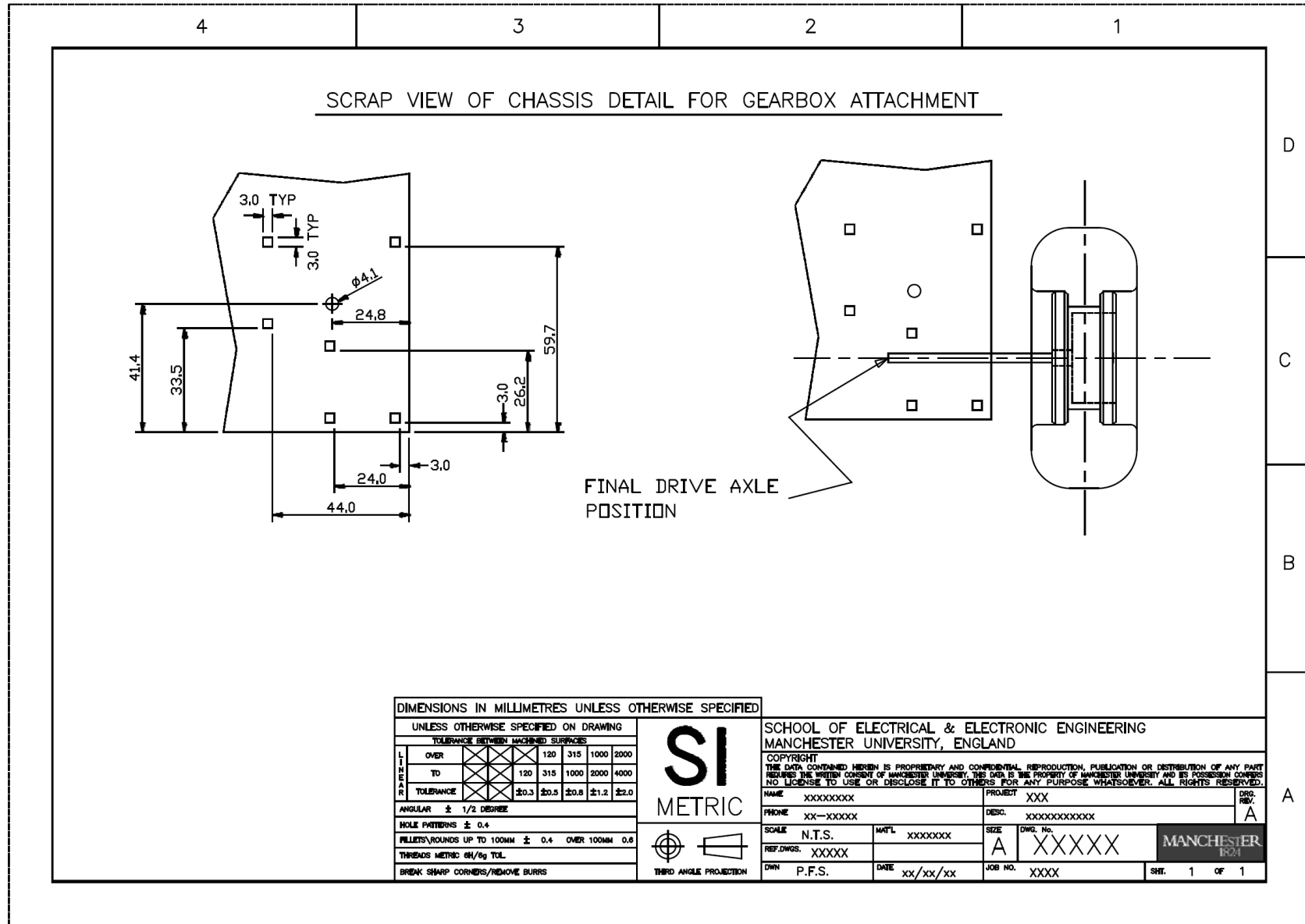
Motor	<b>RS Pro DC Motor 6-15V</b> <a href="http://uk.rs-online.com/web/p/dc-motors/2389715/">http://uk.rs-online.com/web/p/dc-motors/2389715/</a>	
Encoder	<b>Broadcom AEAT-601B-F06 – Hall Effect Incremental Quadrature Encoder (256 CPR)</b> <a href="https://www.broadcom.com/products/motion-control-encoders/magnetic-encoders/aeat-601bf06">https://www.broadcom.com/products/motion-control-encoders/magnetic-encoders/aeat-601bf06</a>	
Connection Terminal	<b>TE Micro-Mate-N-Lok 3mm 6WAY 2 ROW PANEL MOUNT SOCKET</b> <a href="http://uk.farnell.com/amp-te-connectivity/794615-6/plug-panel-dual-row-6way/dp/1111110">http://uk.farnell.com/amp-te-connectivity/794615-6/plug-panel-dual-row-6way/dp/1111110</a>	
Connection Terminal Crimp	<b>TE Micro-Mate-N-Lok PANEL MOUNT SOCKET CRIMP</b> <a href="http://uk.farnell.com/te-connectivity-amp/1-794608-0/contact-pin-24-20awg-crimp/dp/2576110">http://uk.farnell.com/te-connectivity-amp/1-794608-0/contact-pin-24-20awg-crimp/dp/2576110</a>	
<b>To interface to the motor module use</b>		
Interface Connector	<b>TE Micro-Mate-N-Lok 3mm 6WAY 2 ROW CONNECTOR</b> <a href="http://uk.farnell.com/te-connectivity-amp/794617-6/housing-receptacle-2-row-6-way/dp/1654501">http://uk.farnell.com/te-connectivity-amp/794617-6/housing-receptacle-2-row-6-way/dp/1654501</a>	
Interface Connector Crimp	<b>TE Micro-Mate-N-Lok 24 to 20 AWG Crimp Terminal</b> <a href="http://uk.farnell.com/te-connectivity-amp/1-794610-1/contact-socket-24-to-20-awg-crimp/dp/1339224">http://uk.farnell.com/te-connectivity-amp/1-794610-1/contact-socket-24-to-20-awg-crimp/dp/1339224</a>	

**NOTE PROPERLY TERMINATED ELECTRICAL CONNECTIONS ARE THE BACKBONE OF A ROBUST RELIABLE ROBOT**

If you badly terminate a crimp connection then this will soon lead to intermittent connections which will result in robot failure at the most inopportune of times. Please take extra care to learn how to properly crimp your wires in the C18 practical laboratories in semester 2 from the demonstrators

## Diagrams (dimensions are all in mm)





## Pinout

As you look at the connector from the front, with the encoder on the right of you

