



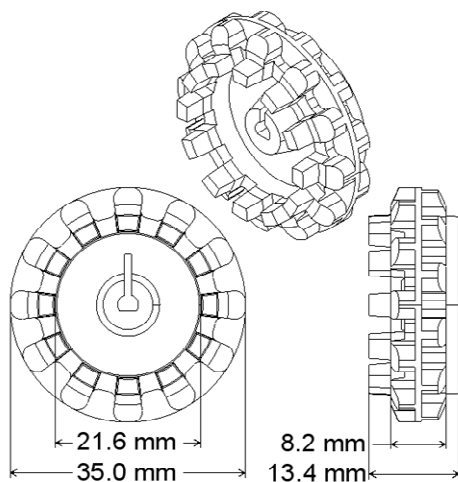
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Pololu Wheel 42x19mm

Basic Mounting

These gearmotors should be mounted onto the side of the hub with the protruding teeth, as shown in the images below. The output shaft will slide into the socket easily at first but will achieve a snug fit when pressed through to the other edge of the hub. The output shafts on the Solarbotics metal gear motors will also fit these wheels, but because they are shorter they will have to be mounted onto the other side of the wheel where the fit is tighter. Pololu's extended micro metal gearmotor bracket is specifically designed to work with this wheel.



Encoder Feedback

The hub has twelve teeth, each 3 mm wide and separated from its neighbors by 3 mm gaps. Because the teeth are white and the tire is black, a compact reflectance sensor such as Pololu's QTR-1A can be used as an encoder. Note that in order to get the QTR to fit within the hub, you will need to cut or file off the mounting hole portion of the QTR's PCB. You can then mount the QTR on the motor or motor bracket so that it is inside the hub looking outwards at the teeth that protrude from the rim.



Motor placed into the hole



Motor Shaft pushed to obtain a snug fit



QTR with hole filed/cut off



QTR to be mounted to robot frame

The following oscilloscope capture shows the results of a test we conducted using a QTR-1A sensor to look at the teeth as the wheel rotated at around 380 RPM. Mounting two such sensors 90° out of phase would allow for quadrature encoder feedback.



QTR-1A output signal when looking out at the interior rim of the Pololu wheel
42x19 mm.