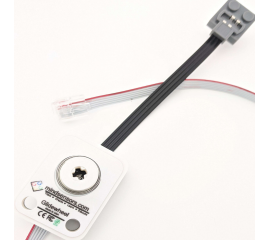


What is GlideWheel-M

GlideWheel-M is a motor controller which lets you attach PF motors to NXT Motor Ports. Using the encoder in *GlideWheel-M*, you can control rotations of PF Motors.



Electrical Connections

Connect *GlideWheel-M* connector to Motor Port of your NXT. Attach PF Motor's power connector to *GlideWheel-M*.

Mechanical Mounting

The side holes of *GlideWheel-M* are designed for pins shown here.

Insert the pins from  bottom of the *GlideWheel-M* as seen in adjacent picture.

Attach *GlideWheel-M* to your PF motor such that *GlideWheel-M* encoder will turn proportional to your motor's turns.

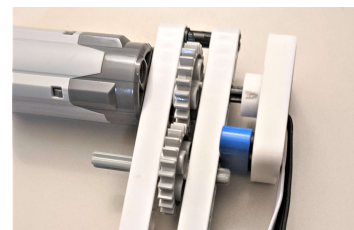
There are multiple ways to do this, e.g. You can mount *GlideWheel-M* on PF motor directly and insert an axle through the *GlideWheel-M* encoder, or



NOTE

The holes are designed for tight fit of the pins. When you dismantle your contraption, it is recommended to leave the pins on the *GlideWheel*.

Mount *GlideWheel-M* on your wheel, insert an axle through *GlideWheel-M* encoder and your wheel and engage the wheel with your PF motor using gears.



NOTE

Ensure that the *GlideWheel-M* encoder turns in the same direction as your motor.

Using GlideWheel-M with various motors

Power Functions 9V Medium Motor 3 x 6 x 3 (58120cx1)

For best results of this motor with NXT, it is recommended to use step down gears between motor and *GlideWheel-M* so that it's encoder is turning slower than the motor.



Power Functions 9V XL Motor 6 x 6 x 6 (58121cx1)

You can mount *GlideWheel-M* on this motor directly, and extend an axle through the *GlideWheel Encoder*.



Programming Techniques for GlideWheel-M

EV3:

To use capabilities of the sensor, please download EV3 blocks available at following URL:

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=209



Installation instructions for EV3 block are available at:

<http://www.mindsensors.com/content/13-how-to-install-blocks-in-ev3>

Download EV3 sample program from following URL and modify it to suit your needs.

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=207

NXT-G:

Use the *GlideWheel-M* block to configure the parameters of your Motor Port where *GlideWheel-M* is connected.



Then use the usual 'Motor' and 'Move' blocks from 'Common' and 'Action' Palette in your program.



You can download the *GlideWheel-M* block from following location:

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=211

Install this block in your NXT-G using following instructions:
<http://www.mindsensors.com/content/21-nxt-g-blocks-how-to-install-blocks>

Download sample program from following location, and modify to suit your needs.

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=210

NXC:

Download the sample programs from following location, and modify to suit your needs. (There is no special API library needed as NXC supports PID configurations via it's API).

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=204

Tips for Best results

Motor and GlideWheel Encoder directions

For program simplicity, ensure that *GlideWheel-M* turns in the +ve direction (as marked on it) when your motor is programmed to go 'Forward'.

Using Synchronized Move feature

While using Synchronized Motors in Move Block of NXT-G, place 'Steering Slider' such that both *GlideWheel's* turn in the same direction. (Do not place the slider all the way to either side).

If you are using synchronized motors feature in NXC API's, do not use extreme values for 'turnpct' (do not use -100 or 100).

Motor Speed and GlideWheel RPM

Setting speed to 100 for PF motors results in very high RPM for PF motors. For best results with NXT, see to it that *GlideWheel* RPM is comparable to NXT motor's RPM.

Using GlideWheel-M in Other Programming Environments

With some differences, the PF motor connected through *GlideWheel-M* is compatible with NXT motor. Compared to NXT motors, the internal load of PF Motors is less and speed of PF motors is higher, as a result, changes in external load affect the performance more so than on NXT motor. To account for that fact, configure the PID parameters of your Motor port based on the load and environment your robot is operating in.