



What is GlideWheel-AS Angle Sensor

GlideWheel-AS is an Angle Sensor to measure angles of a rotating shaft.



Connections and Placement

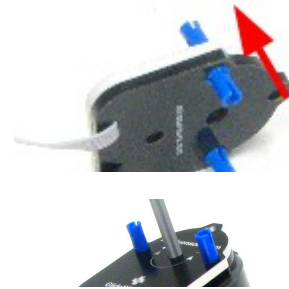
Connect GlideWheel-AS connector to Sensor Port of your NXT.

Mechanical Mounting

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



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



Your rotating axle would be inserted through the center + hole (as seen in adjacent picture).



NOTE

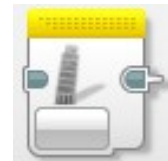
The holes are designed for tight fit of the pins. When you dismantle your contraption, it is recommended to leave the pins on the GlideWheel.

Programming Techniques for reading

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=232



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=233

NXT-G:

Download the NXT-G block that's available in the NXT-G Blocks Repository at Mindsensor's website at following URL.

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=295

Installation instructions for NXT block are available at:

<http://www.mindsensors.com/content/21-nxt-g-blocks-how-to-install-blocks>

You can download and modify the sample program from following url:

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=234



NOTE

Ensure to use latest LEGO firmware on NXT (1.29 or higher).

RobotC:

The driver implementation is available in Xander's driver suite at following url:



<https://github.com/botbench/robotcdriversuite>

the header file for the driver is: mindsensors-angle.h

NXC:

Download the library file and sample programs from following URL, and modify the sample programs to suit your needs.

Library:

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=296

Sample:

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=297

If you need to use *GlideWheel-AS* in your existing program, at the top of your NXC program file, include the library with following directive:

```
#include "AngleSensor-lib.nxc"
```

APPENDIX A - Advanced Information

I2C Registers:

The Angle Sensor appears as a set of registers as follows:

Register	Read	Write
0x41	-	Command Register
0x42	Angle (4 bytes)	-
0x46	Raw Value (4 bytes) This value has 0.5 degree resolution.	-
0x4A	RPM (Revolutions per minute)	

Supported Commands

Command	Function
'r'	Reset Angle to zero.

I2C Bus address

Factory Default Address: 0x30.

Current Consumption

Average measured current profile is as follows:

Current Consumption	Duration
9mA	Continuous

Calibration

GlideWheel-AS does not need any calibration.

Device Specs

Max operating Speed: 4000 RPM

Host Interface: I2C

Sample Rate: less than 1 milli-second (Note however, reading speed from NXT sensor port is about 16 milli-seconds).

RPM Computations: RPM is computed based on the rotations in past 1 second.