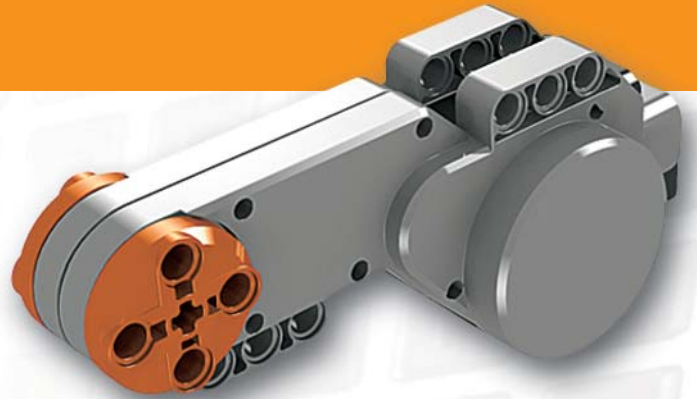## Interactive Servo Motor

The three Interactive Servo Motors provide the robot with the ability to move. Using the Move [Move] block automatically aligns their speed so that the robot moves smoothly.

Built-in Rotation Sensor
The Interactive Servo Motors all have a built-in Rotation Sensor. The rotational feedback allows the NXT to control movements very precisely. The built-in Rotation Sensor measures the Motor rotations in degrees (accuracy of +/- one degree) or full rotations. One rotation is 360 degrees, so if you set the Motor to turn 180 degrees, the hub will make half a turn.

360°

Suggestions for use

The built-in Rotation Sensor in each motor along with the Power configuration in the Move or Motor blocks in the Software (see page 53-55) allow you to program different speeds for your Motors and move the robot accurately.
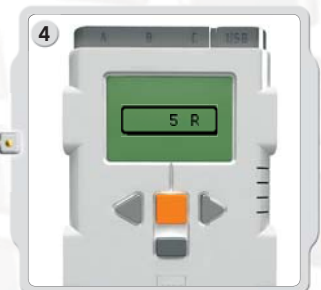
View

Test the Rotation Sensor's ability to measure distance.
Connect the Motor to the NXT.
Select View in the NXT display.

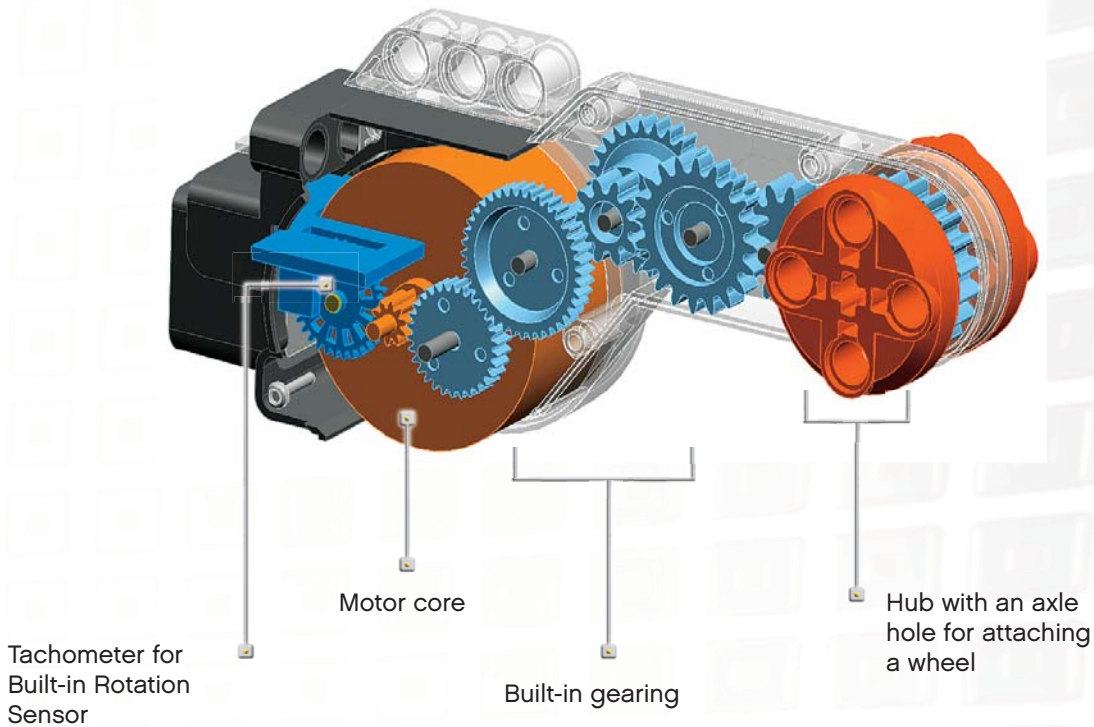| 1	2	3	4
Motor rotations			5 R
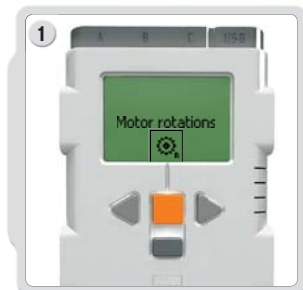
Select the Motor rotations icon.
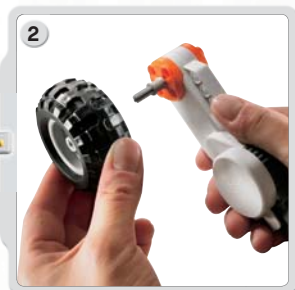
Select the port in which you have placed the Motor.
Now try to attach a wheel to the Motor and measure the rotations by pushing the wheel over the floor.

Interactive Servo Motor

Tachometer for
Built-in Rotation
Sensor

Motor core

Built-in gearing

Hub with an axle
hole for attaching
a wheel

Try Me

Use the appropriate program in the Try Me submenu (see page 17) to quickly see how it works.

Program

You can also use the Program [Program] feature to create programs right on the NXT without using a computer.

See the Program section on page 15 to create a program using the Motors.

Lamps

The Lamps can be turned on and off, creating flashing patterns of light. They can also be used to activate the Light Sensor or to show that a motor is on or to indicate the state of a sensor. You can also use them to liven up your robot "eyes" or other features.

Use the converter cables to attach Lamps to output ports A, B, or C. There are three Lamps and three converter cables included.
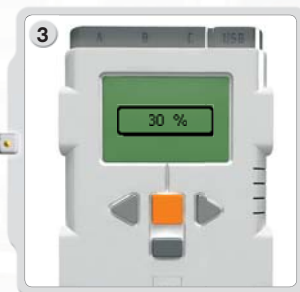
View

Use the Lamps to activate the Light Sensor.
Select Ambient Light.

1	2	3
Use the Lamps to activate the Light Sensor. Select Ambient Light.	Shine the Lamp near the Light Sensor.	Notice that the reading changes.