### What is NXTSumoEyes

NXTSumoEyes is a Obstacle Sensor designed for NXT. This can be used to detect obstacle on left, right or in front of robot up to 8 inches away. It also has two distance ranges to detect obstacle in.

Overview of Operation

NXTSumoEyes is pre-calibrated and does not need any calibration. IR beam on the Left and Right side of IR led spans as shown in figure below. The Short range zone is about 6 inches (15 cm), and Long Range zone is about 12 inches (about 30 cm).
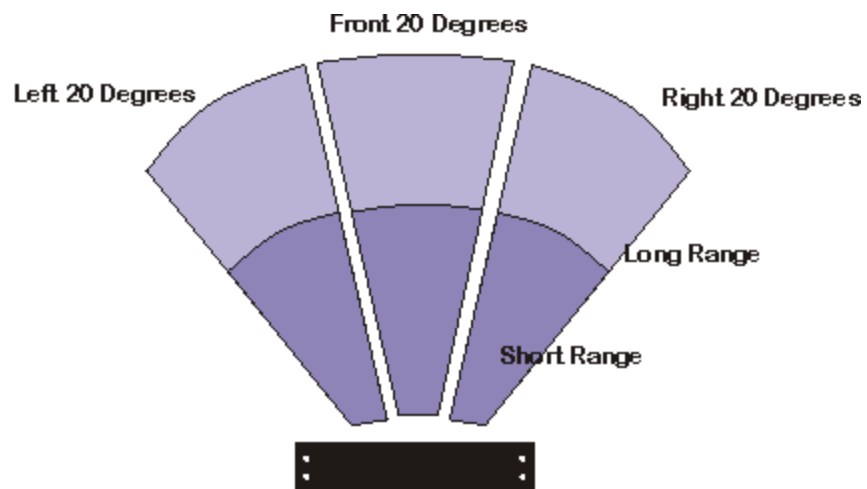
⚠ **NOTE**
This distance of the Ranges changes based on NXT battery power and load on the batteries (such as running/stalled motors) at the time of reading and reflectivity of the obstacle, e.g. a white paper obstacle is detectable at a farther distance than a dark object. Detection range of very dark objects is reduced considerably (to half or third).

Values returned by NXTSumoEyes

- Obstacle detected on left side: 30-36.
- Obstacle detected on right side: 63-69
- Obstacle detected in front: 74-80

Electrical Connections

Connect to any port of NXT using the supplied cable. This sensor does not support ADPA mode, however using the standard feature of NXT, you can connect one digital sensor along with this analog sensor on a single sensor port.

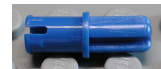## Mounting NXTSumoEyes on your contraption

The holes on the NXTSumoEyes enclosure are designed for tight fit of Technic pins (or axles) with '✚' cross section. The holes however are not designed for repeated insertions/removals of these pins.

To mount NXTSumoEyes on your contraption we suggest that you use two dark gray 'Technic Axle 3 with Stud' as shown.
Insert axles from the top of the NXTSumoEyes and secure with a bushing on the back or mount it on your contraption directly.
Alternately, you may use blue 'Technic Axle Pin with Friction', as shown.
While disassembling contraption, leave the pins on NXTSumoEyes.

Programming Techniques for reading

EV3:
To use capabilities of the sensor, please download NXT blocks available at following URL:
http://www.mindsensors.com/index.php?
module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=235

Installation instructions for EV3 block are available at:
http://www.mindsensors.com/pages/198

Download EV3 sample program from following URL and modify it to suit your needs.
http://www.mindsensors.com/index.php?
module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=244

NXT-G Method:

You can use the NXTSumoEyes with Lego light sensor block. Or you can use dedicated NXT-G block designed for NXTSumoEyes. Download the NXT-G block from following URL:
http://www.mindsensors.com/index.php?module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=108

Download sample NXT-G program from following URL and modify to suite your needs:
http://www.mindsensors.com/index.php?module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=110

RobotC:

Download the library file and sample programs available at following URL:

http://www.mindsensors.com/index.php?module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=112

You should include the library file (SE-lib.c) in your program with #include directive, and use the API's provided by the library.

Alternately, you may modify the sample programs to suite your needs.

NXC:

Download the library file and sample programs available at following URL:
http://www.mindsensors.com/index.php?module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=111
You should include the library file (SE-lib.nxc) in your program with #include directive, and use the API's provided by the library. Alternately, you may modify the sample programs to suite your needs.

⚠ **NOTE:**
While using with NXC ensure to use firmware version 1.05 (for Mindstorms NXT 1.x kits) or 1.26 or 1.28 (for Mindstorms NXT 2.x kits).

Physical Specs

Weight: 0.39 oz (11.0 grams)
Foot-print: 16.4 mm x 72. mm
Height: 25 mm

Current Consumption

Average measured current profile is as follows:

Current Consumption	Duration
2.6mA	Continuous