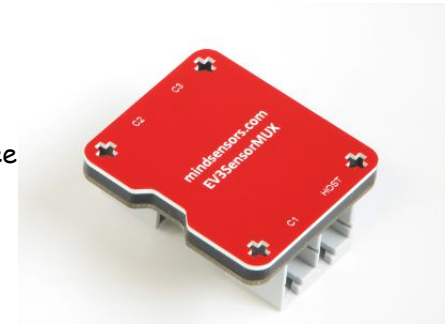
What is EV3 Sensor Multiplexer



EV3 Sensor Multiplexer is an in-line adapter to connect up to three EV3 sensors to NXT brick, EV3 brick, Arduino using EVShield or NXShield, and Raspberry Pi using PiStorms or BrickPi on a single port.

****Having difficulty getting started?**
Check out the Getting Started Guide at
http://mindsensors.com/pdfs/EV3SensorMUX-Getting-Started.pdf

Connections

Connect the Host port to your NXT or EV3 (or EVShield or PiStorms).
Connect your EV3 sensors to 1 of 3 channels.

Supported Sensors

Supported sensors as follows:

Sensor Name	Supported Modes	Mode Number	bytes	Expected data
EV3 Color	ReflectedLight AmbientLight Color	0 1 2	2 2 2	0(very dark) to 100(very light) 0(very dark) to 100(very light) 0 to 7
EV3 Gyro	Angle Rate	0 1	2 2	-32768 to 32767 degrees -440 to 440 degrees/second
EV3 Infrared	Proximity Beacon Remote	0 1 2	1 8 4	0(very close) to 100(far away) proximity: (see above) heading: -25 to 25 0 to 11
EV3 Ultrasonic	CM Inches Presence	0 1 2	2 2 1	3 to 255 cm 1 to 99 in 0(False) to 1(True)
EV3 Touch	State	15	1	0(not pressed) to 1(pressed)

*****Chart only reflects modes supported by the Mindstorms blocks. Other possible modes may work with other programming environments.**

For details about data returned by each sensor or modes, please refer to EV3 IDE help pages.

Programming Techniques for EV3 Sensor Multiplexer

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=161

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=162

NXT-G:
Not supported. It is recommended to use the new EV3 software for your NXT programming.

NXC:
Download the sample programs and library file for the EV3 Sensor Adapter available at following location, and include the library file it in your program by #include directive. Be sure to modify the I2C address for the channel of the EV3 Sensor Multiplexer.

http://www.mindsensors.com/index.php?controller=attachment&id_attachment=299

RobotC:
Downlaod Xander's driver suite from GitHub:
https://github.com/botbench/robotcdriversuite
Start with the example program: **examples/mindsensors-ev3smux-test1.c**, copy it with a new name and modify to suite your needs.

Advanced Information

I2C Bus address

Factory Default Addresses:

Channel 1: 0xA0

Channel 2: 0xA2

Channel 3: 0xA4

I2C Registers:

The EV3 Sensor Multiplexer appears as a set of registers with following interpretation and operations.

Register	Read	Write
0x00-0x07	Software version – *Vx.nn*	-
0x08-0x0f	Vendor Id - *mndsnsrs*	-
0x10-0x17	Device ID – *Ev3SMux*	-
Sensor data		
0x52	Current selected mode.	Set sensor mode
0x54	Sensor read data	-
0x55	Sensor read data (depending on sensor and mode)	-
0x56	Sensor read data (depending on sensor and mode)	-
0x57	Sensor read data (depending on sensor and mode)	-
0x58	Sensor read data (only for infrared sensor)	-
0x59	Sensor read data (only for infrared sensor)	-
0x5A	Sensor read data (only for infrared sensor)	-
0x5B	Sensor read data (only for infrared sensor)	-
0x74	Ready Flag (returns value of 1 if the EV3 sensor is ready to send data, 0 if it is not)	