

What is RXMux

RXMux is a multiplexer designed to attach RCX style sensors to your NXT. This can be used to attach upto 4 RCX sensors to NXT. Individual sensor can then be selected to read from. RXMux consumes between 2 to 4 micro Amps depending on number of sensors attached.

Supported Sensors

RXMux supports following sensors:

- RCX Touch Sensor
- RCX Light Sensor
- RCX Rotation sensor *
- RCX Temperature sensor



NOTE

RXMux multiplexes between its channels. i.e. When one sensor channel is selected to read, other channels are not being read. In particular this needs to be considered while using a Rotation sensor on RXMux, while a different channel is selected, the rotations of that sensor are not registered.

Programming Techniques

NXT-G Method

Use the RXMux block to select the channel of the sensor you wish to read.

After selecting the channel, to read from that channel, use the usual NXT-G block designed for that RCX sensor.

The RXMux block may be downloaded from site:

http://www.mindsensors.com/index.php?module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=43

You may need to download the NXT-G blocks for RCX sensors from 'Legacy Block Library' section of LEGO website at:

<http://mindstorms.lego.com/Support/Updates/>

A sample NXT-G program is available at:

http://www.mindsensors.com/index.php?module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=27



RobotC Method

To select the channel of the RXMux, you need to send an I2C message to the RXMux indicating your channel number, and then read your sensor with usual RobotC API.

The function to select RXMux channel is as follows:

```
void RXmuxChannel(const tSensors RXMuxPort, byte RXMuxChannel)
{
    SensorType[RXMuxPort] = sensorI2CCustom9V;
    const byte RXMuxMSG[] = {2, RXMuxID, RXMuxChannel };
    while (nI2CStatus[RXMuxPort] == STAT_COMM_PENDING) {
        ; // Wait for I2C bus to be ready
    }
    sendI2CMsg(RXMuxPort, RXMuxMSG[0], 0);
}
```

The section 'Address and Channel ID' below explains the channel value to use.

This library function and a sample program for RobotC is available at:

http://www.mindsensors.com/index.php?module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=58

NBC/NXC Method:

To select the channel of the RXMux, you need to send an I2C message to the RXMux indicating your channel number, and then read your sensor with usual NXC API.

Use the library function and sample program at following URL:

http://www.mindsensors.com/index.php?module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=59

Connections

Connect RXMux to NXT using standard NXT cable supplied with Mindstorms kit or Flexi-cable from mindsensors.com.

Connect your RCX sensors to the RXMux using the standard cables supplied with RCX kit. These cables are connected from the bottom of the RXMux as shown. While connecting, ensure to connect all four studs with electric contacts to RXMux.



While connecting a touch sensor directly to RXMux, ensure to connect all four electric studs of Touch sensor to RXMux, as shown in adjacent picture.



Address and channel ID's

The I2C address for RXMux is 0x7E. To select a channel, write following command to RXMux at address 0x7E.

Deselect all channels	0xFF
Select Channel 1	0xFE
Select Channel 2	0xFD
Select Channel 3	0xFB
Select Channel 4	0xF7